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COLD FUSION Developer's Journal

ColdFusionJournal.com

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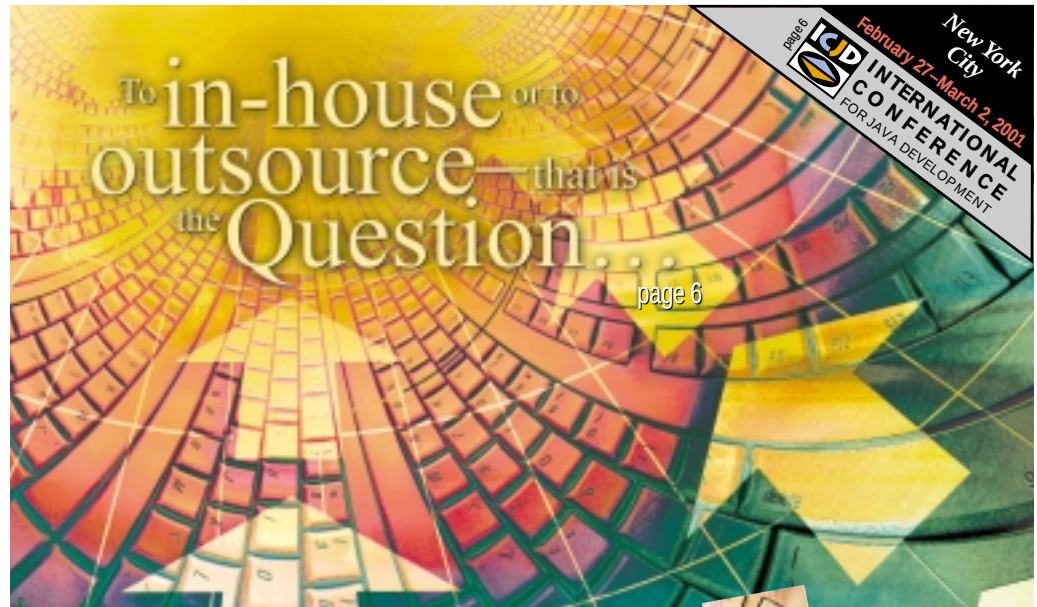
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COVER PRICE \$8.99/ISSUE

DOMESTIC \$79/YR. (12 ISSUES)

CANADA/MEXICO \$99/YR

OVERSEAS \$129/YR

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COLDFUSION DEVELOPER'S JOURNAL (ISSN #1523-9101)

IS PUBLISHED MONTHLY (12 TIMES A YEAR)

FOR \$79 BY SYS-CON PUBLICATIONS, INC.,

135 CHESTNUT RIDGE RD., MONTVALE, NJ 07645

POSTMASTER

SEND ADDRESS CHANGES TO:

COLDFUSION DEVELOPER'S JOURNAL

SYS-CON MEDIA, INC.

135 CHESTNUT RIDGE RD., MONTVALE, NJ 07645

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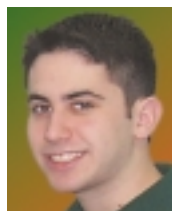
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Welcome to the Web Hosting Focus Issue



BY ROBERT DIAMOND

For those of you not keeping track, I wrote an editorial last April about finding a CF hosting company and promised more information the following month. As you may have noticed, it never came. Why? Because when I outlined Part 2, I realized I could easily write Part 3, Part 4, and so on, because it's such a large topic, with many different angles and countless points to consider.

So I'm proud to present this month's issue with a focus on ColdFusion hosting. Rather than have me rambling on for four months on the topic, we've collected material from the best and the brightest in the industry.

The articles are designed to guide you along the important decision-making journey. We start with how to make the decision to host or not to host, and follow all the way through to talking with hosting companies to see how they check code and solve user problems. Going from beginning to end, and then moving on to support – these are all considerations when deciding to host out-of-house. I think you'll be pleased with the results. Also, look for ongoing discussions on the **CFDJ** Forum and the CFDJList, both accessible from www.coldfusionjournal.com.

DevCons Aplenty

My cat barely recognizes me these days, and my friends say "Rob who?" when I call. That's because I've been traveling almost nonstop (it seems) for **SYS-CON Media** to a variety of developer conferences. Some of the conferences are presented by us, and you can find out more about them at www.sys-con.com; others, such as the Allaire Conference, aren't. The purpose of my being at these conferences (aside from my love of travel) is twofold. First is to cover the conferences for the magazine since they're a hotbed of product announcements, new releases, and demos of future products. Second is to present our world-class stable of technology publications to the few in the industry who aren't yet familiar with **SYS-CON Media**.

While in the process of alienating those closest to me, I've learned an important lesson regarding the importance of developer conferences. Of course you've got a fantastic lineup of technical sessions presented under a diverse list of program tracks so you can attend only what interests you, filling in the gaps of your expertise. And the packed exhibitor floors are always a great place to see the latest and greatest wares proffered. The most fruitful experiences I've had, however, are those that occur right outside the classrooms, or off to the side of the exhibit floor. It's the participation in small conversations with other developers and industry peers that have taught me the most. "Networking" is one of those great wonders of the business world, and where better to do it than at a gathering of 5,000 like-minded individuals? So when the next conferences roll around that cover things you're working on, or might like to work on, I hope to see you there – we'll talk.



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BY MARK ALEXANDER

With the Internet and e-commerce becoming ever more important to business success, the connection a company makes to the Web and the way it's maintained and managed can become a major success factor – or a major liability.

Making the decision to establish a Web presence isn't even an issue for most businesses these days. Companies are expected to be accessible via the Web. In fact, for many companies a Web presence isn't just nice, it's mission-critical. And the decision is more likely to be whether to implement a Web site in-house or outsource it to a total Web solutions provider.

Success in the Web arena – whether for information, marketing, or more complicated e-commerce applications – requires an implementation strategy that does more than just ensure a Web presence. It also has to ensure that the site will be up to date, open for business, and responsive to customers and business partners 24 hours a day, seven days a week.

An unreliable Internet connection or a limited network can be a disaster when mission-critical business is directed to the Web. If your Web site isn't available when your customers or your business partners need it to be, or if it can't handle increases in demand effectively, your company can lose both time and money, and possibly damage your reputation.

Determining how to approach development and ongoing operation of a business Web site presents challenges – and the choices you make can directly impact your bottom line. The more you know about the issues involved in in-house implementations and outsourced approaches, the better prepared you'll be to make the right decision for your business.

In or Out?

If yours is a simple site that doesn't need to support a great deal of interactive or transaction activity, and doesn't require frequent updates or day-to-day management, an initial in-house implementation may make sense. With such an implementation, you'll have total control, but even with the simplest of Web sites you'll have to deal with issues such as capital equipment planning, acquisition, and costs; security; speed to market; staffing; management; ongoing site maintenance; adding capabilities and capacity; reliability; and hosting alternatives. And simple sites have a way of becoming more complex very quickly. These are the sorts of issues that are leading more and more companies of all sizes to outsource their Web presence.

Outsourcing was the route of choice for 44% of 2,500 companies worldwide that were interviewed in 1998, according to a recently published Forrester Research report. Today, 62% of those companies are in favor of outsourcing their Web presence, top reasons being cost savings and lack of internal expertise.

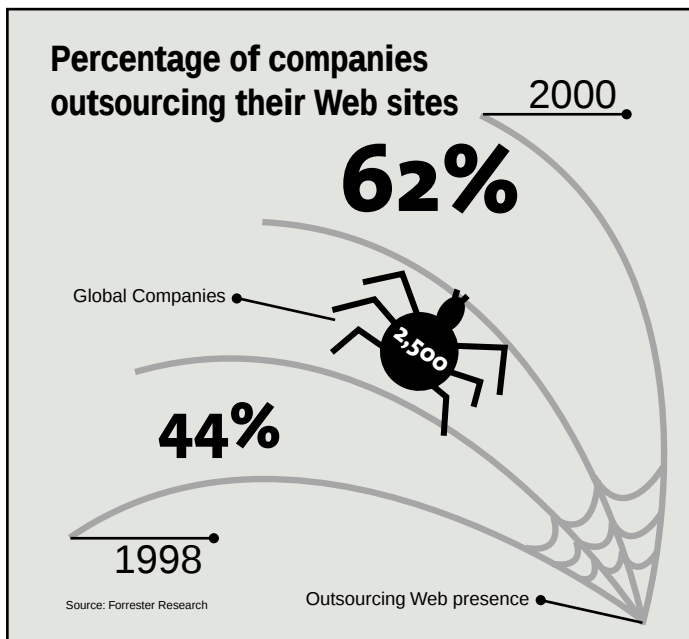
Clearly, choosing to outsource your Web solution can eliminate many of the expenses and issues you'll encounter with an in-house approach. For the majority of businesses of all sizes, outsourcing is the most cost-effective, most efficient way – and in many cases the most secure way – to implement and manage a Web-based capability.

Still, a number of issues should be considered as you select your outsourcing partner. What portion of the development, management, and maintenance of your Web-based solution should you outsource? Will your information be secure? Does your outsourcing partner offer you a choice of plans and hosting options? What kinds of resources will your solution provider make available to you for creating, developing, and supporting your Web business? What happens when you need more bandwidth or want to add capabilities? How quickly can your solution provider act and react?

What the Right Partner Can Do

For starters, a good outsourcing partner can save your company time and money. With the right partner, your time-to-market will probably be significantly faster than with an in-house solution. Why? Because your outsourcing partner does this day after day – it's the company's core business. The infrastructure is in place, the network is secure, and skilled professionals are available to manage the implementation and deployment from start to finish, as well as per-form system administration, monitoring, and testing procedures.

Another benefit of working with an outsourcing partner, and a real time-and-money saver, is their knowledge of the Web and the important considerations involved, from provisioning your business on the appropriate system architecture to database integration and support, and access to reliable customer service and technical support when you need it. With an outsourcing company handling your implementation, you don't have to spend time locating, hiring, and training Web-savvy professionals. The right partner will already have a staff of experienced Web experts who deal daily with the issues encountered in Web site implementation and can recommend the most appropriate solution for your needs. Web outsourcing companies are constantly tracking technological advances and evaluating new offerings. They have ready-made solutions for most requirements and the expertise to address others efficiently and accurately.

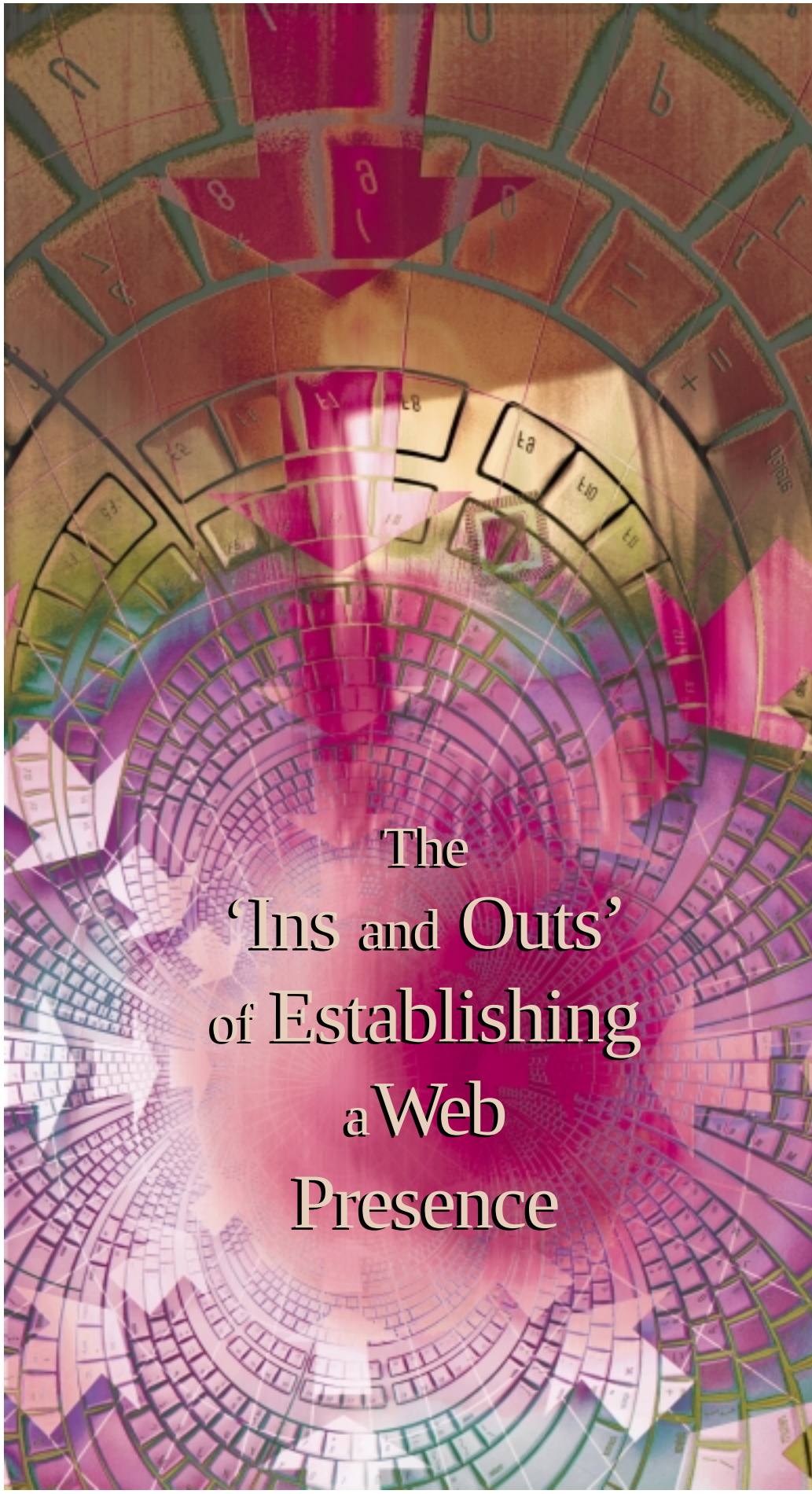


Should it be implemented in-house or outsourced?

An outsourcing partner can also save you significant time and money in equipment, software, and network access expenses. If you implement in-house, you must purchase servers, set up the network or integrate the Web applications into your existing network, implement security measures, and contract for hosting, among other things. When you outsource, you can leave all that to your partner, saving the capital outlay and getting your site up and running much more quickly. What's more, you'll save additional time, money, and aggravation down the road as your requirements change. Because your outsourcing partner provides this kind of service on an ongoing basis, you can expect that the company will be ready and able to scale your site to handle new requirements, higher traffic volumes, and new applications.

What to Look for in an Outsourcing Partner

One of the first issues that companies considering outsourcing must address is the level or degree to which they want or need the outsourcing company to manage their Web site. Outsourcing companies are able to provide everything from managed hosting services, e-commerce, and Web site design and development to business applications hosting. Even if your business Web requirements are minimal initially, it's probably a good idea to look for an outsourcing partner that offers a broad range of services you can take advantage of as your needs change and grow. The more capabilities your outsourcing partner brings to the relationship, the fewer



The 'Ins and Outs' of Establishing a Web Presence

resources you'll have to divert from your core business to work on Web-related tasks.

Most outsourcing companies offer several hosting levels, giving you the opportunity to select the one that best meets your current needs. In many cases upgrading to a higher level is a relatively simple process; however, sometimes an upgrade will require retooling your site. Check with potential outsourcing partners to learn how they plan to address needs for added capacity and additional solutions that you may require down the road. Scalability is important, and the more scalable your outsourcing partner's infrastructure, the less likely it is you'll need to start over to handle increased traffic, transactions, and user functionalities on your site.

Hosting options offered by outsourcing companies include:

- **Shared hosting:** An economical, flexible Web solution that small- and medium-sized businesses can use to establish an online presence. *Shared* hosting, as the name implies, means that your site is allocated a portion of a Web server that's also used by other companies. (Your databases, information, and user access to your site remain singularly yours). It's important to find out critical information such as the sizes and types of servers your potential outsourcing partner uses, security methods employed, whether there's sufficient system redundancy to ensure virtually uninterrupted availability of your site, and back-up schedules and procedures.
- **Dedicated hosting:** Provides a full-time link to your Web site that's yours alone. Dedicated hosting is a good choice for businesses that want to take advantage of the power of a high-speed network without having to make a large capital investment. If dedicated hosting is what your business needs, be sure to look for an outsourcing partner that goes the extra mile, offering high-speed continuous monitoring by trained Web experts.
- **Managed hosting services:** Typically added to dedicated hosting plans and available for businesses with complex Web site needs to ensure maximum site performance and scalability. These services address foundational Web hosting and server operations, allowing customers to focus on their core business. Powerful features can include added security, virtual private network services (VPNs), system backup and recovery, and system administration to handle upgrades and software installations, as well as system monitoring and real-time reporting services.
- **High-availability hosting:** Available from some Web outsourcing companies for mission-critical data and applications that absolutely must be available without interruption. Usually a multiserver configuration, high-availability hosting solutions offer availability guarantees through service level agreements (SLAs). With these hosting plans it's important that features capable of delivering this kind of reliability and availability back the guarantees. Load balancing, security, fault-tolerant backup, reliable high-speed availability, and scalable architecture are some examples of features that can help protect your mission-critical data and applications from performance-related problems.

Services Beyond Hosting

While many Web outsourcing providers limit their services to hosting, others go further, providing a broad range of services that can add value to the relationship and deliver significant savings. Being able to turn to a single outsourcing partner for such things as software applications, Web site design, Web marketing, and e-commerce solutions in addition to your Web hosting needs provides your company with proven added value, and can help businesses significantly increase the utility of their Web presence.

Among the value-added services you may want to investigate as you look for a Web outsourcing partner are:

- **Software application hosting:** If your outsourcing partner has the ability to deploy, host, and manage Web applications for you, you can take advantage of this capability to expedite implementations and save in-house costs. "Renting" access to hosted business applications, such as Microsoft Exchange 2000, lets you leverage the connectivity, storage, hardware, and network administrators already in place in your outsourcing partner's organization – at a cost that's only a fraction of what it would be if you managed them in-house.
- **Web site design:** Creating a Web site that's both attractive and functional requires a combination of technical and creative talent seldom present inside companies. If your company doesn't have resources to do this job well, it makes sense to find an outsourcing partner that offers this service. Your site is the public face and reputation of your company on the Web. It's important that the organization you choose to plan, build, and launch your Web site understands the mission of your company, the role the Web site plays in that mission, and your audience, and will create a site with a look and feel consistent with your image and goals.
- **E-commerce solutions:** A profitable Web site depends on e-commerce. When outsourcing your e-commerce application is part of your Web site plan, it's critical that your outsourcing partner have the facilities, knowledge, and commitment to provide you with secure, reliable solutions to ensure that your e-store is open 24 hours a day, 365 days a year. This kind of performance depends on advanced technologies that many outsourcing companies may not have. For an alternative to expensive in-house development, look for an outsourcing partner with industry-leading platform and the server technology and know-how to implement and maintain an effective, productive e-commerce solution for you. The right choice can add directly to your top and bottom lines.
- **Web marketing:** Promotion is an integral component of successful Web sites. The right outsourcing partner can deliver big returns. If the company that does your Web hosting can also help you market effectively by providing the necessary resources to gain high visibility on major search engines, you'll benefit through increased traffic to your site.

The Bottom Line

While outsourcing may not be for everyone, it offers big advantages in terms of time and cost savings. With the variety of capabilities and options available, and the advances in security measures that protect your online assets, many organizations will find that relying on a full-solution Web hosting/outsourcing provider for managed Web hosting services, business application development, launch, and maintenance tasks can deliver:

- Faster time-to-market for that all-important competitive edge
- Hosting choices and the ability to expand your site rapidly to accommodate growing needs and increased traffic
- Secure networks and servers to ensure that your private information is protected
- Professional site maintenance and management that free internal resources to focus on core business objectives
- Value-added capabilities and services conveniently delivered by a single provider
- An ongoing relationship that saves you time and money without forcing you to compromise on quality



About the Author

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Paired Custom Tags

BY
CHARLES
AREHART



The possibilities are exciting

You may have heard that Release 4 of ColdFusion introduced support for nested and paired custom tags. This offers many possibilities for creating more complex custom tags.

In this month's **Journeyman ColdFusion** I'll introduce you to paired custom tags.

Paired custom tags are similar to simple custom tags except that instead of just a single tag, there's a closing tag as well. For instance, if there was a custom tag called "TEST", the simplest way to call it would be:

```
<CF_TEST>
```

or possibly:

```
<CF_TEST ATTR1="value1">
```

In the latter case, the TEST custom tag was obviously designed to accept a parameter, such as passing an ATTR1 attribute with a value of "value1".

(For those not familiar with custom tags, I recommend two of my previous articles that introduced the subject [CFDJ, Vol. 2, issues 4 and 5] at www.sys-con.com/coldfusion/archives/0204/arehart/ and www.sys-con.com/coldfusion/archives/0205/arehart/. I'll presume you're familiar with simple custom tags, how to create them, and how to pass parameters to them.)

Paired tags are a newer phenomenon, however, and many developers are slow to start using them. They're really not difficult to use or understand.

About Paired Custom Tags

The key difference with paired custom tags, of course, is that they're coded with both an opening and a closing tag, as in:

```
<CF_TEST>
</CF_TEST>
```

This may look strange at first, and in this case there may be no real reason to do it. But it becomes powerful when there's something specified between the tags, as in:

```
<CF_TEST>
This is a set of data that will be
processed by the custom tag.
</CF_TEST>
```

The tag is still being provided with data to process, but instead of being provided as a parameter, it's being provided between the tags. You can still use parameters in paired tags:

```
<CF_TEST ATTR1="value1">
This is a set of data that will be
processed by the custom tag.
</CF_TEST>
```

Paired tags provide you with more space and flexibility in specifying the data to be passed into the custom tag. This is one of the two main reasons to use them.

There's a lot to learn about using paired tags. It's not quite as simple as just using them in pairs; we'll discuss these subtleties later. However, we should realize that paired tags aren't really that foreign.

Paired Tags, Not Really New to Us

While the ability to use paired custom tags may be relatively new, we've certainly all dealt with paired tags before, both in HTML and in CFML. Consider the following:

- `<BODY></BODY>`
- `<H2></H2>`
- `<CFQUERY></CFQUERY>`
- `<CFIF></CFIF>`

These tags are designed to work in pairs only, that is, with a closing

tag. You obviously can't do a `<CFIF>` without a closing `</CFIF>`. The same is true for the rest of the tags.

An important reason they're designed this way, though, is that each tag requires information, possibly quite a lot, to be passed to it to process.

For instance, an `<H2>` tag takes all the data between the tags and presents it in a larger, bolder font. A `<CFQUERY>` tag interprets all the data between the tags as SQL to be sent to a database. There may be a lot of information to be converted by the `<H2>` or interpreted by the `<CFQUERY>`, and trying to pass that as a parameter could become awkward.

Actually, at one time CF programmers *did* pass SQL as an attribute/value pair:

```
<DBQUERY NAME="HomeSearch" DATA-
SOURCE="house1"
SQL="SELECT * FROM Data WHERE ZIP =
'#FORM.ZIP#'">
```

If you think about it, trying to pass in the SQL as a parameter has various limitations, not the least of which is that we wouldn't be able to embed other CF tags within the value of the "SQL" attribute, as in the example above.

While the designers of those HTML or CFML tags could accept that data as attributes (and we see that at one time with CFQUERY's ancestor DBQUERY they did), it made more sense to accept it as data between the tags.

It's just a simple design choice. The good news is that now designers of CFML custom tags have the same choice.

Using Paired Custom Tags

We've learned that one of the benefits of paired custom tags is that we can

process the data between them. Now the question is: How do we use them? We need to understand a few of the characteristics of using paired custom tags, so follow along and we'll create some real code examples. We'll expand on them as we introduce new concepts.

First, create a program called `call_test.cfm` with the following lines:

```
<CF_TEST>
</CF_TEST>
```

This will call/execute a program called "test.cfm". If it had said `<CF_TEST2>`, it would try to call a program called `test2.cfm`. Note that the case is not sensitive, at least in Windows environments.

Let's create the `test.cfm` file and place it in the same directory as the `call_test.cfm` program. (Again, if you're new to custom tags in general, see my previous articles for information on alternative locations to place custom tag files.)

You may think you could just create an empty file since we're not doing anything yet in the custom tag; however, you'll get an error because a custom tag (and indeed any ColdFusion program) can't be empty. In `test.cfm` place the following code:

```
Inside the custom tag<br>
```

After saving both of them, when you run the `call_test.cfm` program you should see the following result:

```
Inside the custom tag
Inside the custom tag
```

What happened? The information inside the custom tag was presented twice? Welcome to an interesting facet of working with paired tags – they're executed twice! Once for the opening tag and again for the second tag. We'll deal with that later.

Adding Data Between the Paired Custom Tags

Right now we'll discuss what happens when we add some data between the custom tags. Let's add the words "between the pair" between the tags in `call_test.cfm`:

```
<CF_TEST>
Between the pair
</CF_TEST>
```

“”

Paired tags
provide you
with more space
and flexibility
in specifying
the data to be
passed into
the custom tag

Running that, you should see this result:

```
Inside the custom tag
Between the pair Inside the custom tag
```

What's up with that? Well, it's consistent with the double execution of the tag. It may help to view the actual HTML that would result in that display:

```
Inside the custom tag<br>
Between the pair
Inside the custom tag<br>
```

We still see the "Inside the custom tag" line being generated by the double execution. But we also see the words "Between the pair" displayed between them. (We'll explain the blank line later.)

All this raises several questions:

- How can we do something with the data that's passed between the pair? Right now, it's just being regurgitated.
 - What if we don't want the data displayed? What if we want to use the data for some purpose within the tag and not have it regurgitated at completion?
 - Exactly when is the data being displayed? Before, during, or after the first or second execution of the custom tag?
- We'll address these in turn.

Accessing the Data Between the Tags

Remember that the reason for putting the data between the tags was so we could do something with it. How? Is it available as a variable?

In normal custom tags the data passed in as attribute/value pairs is available as a variable of the form, `attributes.attributename`, where `attributename` is the name of the attribute passed in (in our examples that showed passing of parameters, that would be `attributes.attr1`). We could then do whatever we like with that "attribute" variable, including printing it back to the user and using it within another ColdFusion tag.

In the case of paired custom tags, Allaire introduced an entirely new variable – and indeed a new prefix – to refer to the data between the tags. The new variable is:

```
thistag.generatedcontent
```

Notice the new prefix, "thistag" – it's a hard-coded, reserved word in ColdFusion now. It's literally the word, "thistag" (just as the other prefix was the word "attributes"). The variable name, "generatedcontent," is also a hard-coded, reserved word.

Like the "attributes" prefix, the "thistag" prefix is available only within a custom tag. The "generatedcontent" variable will have a value only when data is passed between paired custom tags.

As with any variable, we can print the variable or use it within another tag (perhaps a `CFQUERY`). Now add some code inside the `test.cfm` program to do something with the variable that holds that data. First we'll simply display it, also applying the ColdFusion string function `Ucase()` that will convert the data to uppercase. Add the following code to `test.cfm`, so we now have two lines in the program:

```
Inside the custom tag<br>
<cfoutput>#ucase(thistag.generatedcontent)#</cfoutput><br>
```

This will simply display the value of the data passed between the tags. The output of running `call_test.cfm` (if we viewed the HTML source) will be:

```
Inside the custom tag<br>
<br>
```



```
Between the pair
Inside the custom tag<br>
```

```
BETWEEN THE PAIR
<br>
```

What's happening here? Well, the first two lines are created by the initial execution of the custom tag (from the "opening tag"). Remember, the code is executed twice. What we see from this, however, is that the "opening" execution of the custom tag has no value for the "thistag.generatedcontent" variable. It's empty. The variable does exist, but it's empty. That's why we just see a `<br>` with nothing in front of it. There was nothing to Ucase. What about the next two lines?

The Redisplay of the Data Between the Paired Tags

Where's the blank line and "Between the pair" coming from? It's the automatic display of the data between the tags that always takes place, which we saw earlier.

Notice that the data between the tags was simply displayed before the start of the second execution of the paired custom tag (in the closing tag). That's all that's happening here.

There's something a little trickier to take note of, though. In that earlier first example of running the paired tags, I didn't want to explain the blank line before the "Between the pair" text – it's simply a remnant of the fact that in the `call_test.cfm` program, we put the data between the paired tags on its own line.

What do I mean? The blank line we see in the HTML source just before "Between the pair" (which like all blank lines would be ignored when rendered in the browser) is due to a carriage return. Look really closely and you'll see that after the phrase "Between the pair", another carriage return is reflected because the next line ("inside the tag
") occurs on its own line.

If we had put the opening and closing tags and the data between them on one line, the blank line above the phrase and the carriage return after it would go away. It's not a critical point, but it's a characteristic that's not well documented and could lead to confusion if not understood.

...the reason for putting the data between the tags was so we could do something with it

The Second Execution: Where the Action Takes Place

The final four lines of output from that last example above remain unexplained:

```
Inside the custom tag<br>
```

```
BETWEEN THE PAIR
<br>
```

It should be obvious by now that the first line is the first line of the custom tag. We're merely executing it a second time as a result of the closing custom tag. The blank line and uppcased phrase "BETWEEN THE PAIR" and the carriage return that follows it (before the final `<br>`) are all the output of the processing of the `Ucase()` function in that second execution.

Clearly, that second execution is where the variable "thistag.generatedcontent" has a value. And again, its value is the text that was between the tags and the carriage returns before and after it, as explained above. They've all been uppcased. The output of all this would appear in the browser as:

```
Inside the custom tag
```

```
Between the pair Inside the custom tag
BETWEEN THE PAIR
```

Preventing the Automatic Redisplay of the Data

What if we want to clean this up a bit? What if we don't want to show the words "Inside the custom tag" (which we can just delete from the custom tag, as they were there as placeholders) or the data be-

tween the pair (literally the words "Between the pair" above) to appear automatically?

In our example, we just wanted to uppcase the data. We want it to function in a way that's similar to the `<H2>` tag. All that does is render the data in a larger font. The data only appears once, right? In our example there's no reason (in fact it's inappropriate) to have CF automatically display the data twice.

We saw earlier that the first display of the original mixed case data is an automatic display of the data between the tags, and it occurs before the start of the second execution of the tag (the closing tag).

It's a little more difficult than that. What's going on is that it's the value of the `thistag.generatedcontent` variable, as of the end of the second execution (the closing tag), that's being displayed. But it's displayed *before* any processing takes place in the closing tag.

This is hard to grasp at first but it's true. Think of it as being treated like a return variable from the custom tag. CF does perform the closing tag execution and can display a manipulated version of the variable; however, before that second execution's output is displayed, CF will display the value of that variable.

Here's a trick: to stop the display of the original data between the tags, simply set the "thistag.generatedcontent" variable to the empty string.

```
<cfset thistag.generatedcontent = "">
```

You can place it at the end of the custom tag code. Since the variable is empty, it will have no impact at all in the first execution of the code caused by the opening tag. In the second execution it'll prevent the automatic redisplay of the data between the tags before the display of the output from that second execution.

Again, it's really tricky and not well documented, but that's the way it works. If you reduce the custom tag to just the following two lines:

```
<cfoutput>#ucase(thistag.generated-
content)#</cfoutput>
<cfset thistag.generatedcontent="">
```

it'll work as expected. The simple output of running `call_test.cfm` would be:

BETWEEN THE PAIR

which is what we want to achieve when the purpose of the paired tags is to simply perform some processing on the data between them.

Using Rather than Printing the Data

What if the purpose of the tag was to do something with the data between the paired tags without any intention to output it? As an analogy, what if we wanted the paired tag process to process the data as the <CFQUERY> tag does. <CFQUERY> produces no output; rather, it just takes the input to the tag (SQL) and executes it.

It's a fairly straightforward extension of what we just learned. You don't want to create any output in the custom tag code, and again you'd want to set "thistag.generatedcontent" to the empty string.

Using ColdFusion Tags Between the Paired Tags

One last point that's not immediately apparent when first using

paired tags is that you're free to use any ColdFusion tags between the paired tags. That's right! You could use CFIF to cause different text to be passed into the "generatedcontent", or even use CFOUTPUT to, in effect, cause CF variables to be passed in.

You could even do a CFQUERY, though it doesn't make much sense in and of itself since it creates no output. If after that query you did some CFOUTPUT processing (even a loop over records), that output would be passed into the custom tag for processing as part of the "generatedcontent" variable.

This opens up some really interesting possibilities!

Summary

I hope this helps explain paired-tag processing. You'll find some coverage of custom tag processing in the Allaire documentation manual, *Developing Web Applications with ColdFusion*, in Chapter 7, "Reusing Code." You'll find this available within the Help facility in ColdFusion Studio or perhaps on your ColdFusion server if the installation

included loading the HTML version of the manuals. Try <yourdomain-name>/CFDOCS/doc/home.htm> or ask your administrator.

However, you won't get a clear description of what we've covered. This involves more learning by trial and error.

Before concluding, some other topics that are useful to know are the capability to "nest" custom tags (list custom tags inside a pair of other custom tags) and a CF tag related to that sort of processing called CFASSOCIATE. There are also some other "thistag" variables, including one to tell whether the execution of custom tag code is occurring for the opening or closing tag ("thistag.executionmode") and one to tell whether a closing tag has been specified at all ("thistag.hasendtag"). Nested custom tags are covered in the manual as well, and they're also covered in the Allaire class "Advanced ColdFusion Development."



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Hosting: More than Hardware

Managed hosting model delivers performance and return on investment

BY
DIRK
ELMENDORF



It's a common affliction in the emerging Web economy. You need to build and launch your first commercial Web site. Or your current site no longer provides the power or bandwidth capacity needed to meet your e-business requirements.

Now in addition to your day-to-day business and IT demands, you must master the intricacies of specialized Web server platforms, burstable bandwidth access, secure and redundant data centers, Web-focused operating systems, and skilled 24/7/365 technical support.

Deploying an enterprise-class Web site can be a challenge. Fortunately, a new generation of hosting alternatives has emerged that can reduce the risk, cost, and complexity of implementing a Web-based venture.

Five primary challenges need attention when you're planning to deploy an enterprise-class Web site: availability, disaster recovery, performance, scalability, and security. In many cases, these issues are independent of platform or other site-specific details. Failure to overcome these challenges can result in a disaster, so addressing them all in the deployment plan is the key to success.

Availability

The first challenge is operating in a 24/7 environment. Web sites have to be up and available around the clock. Power redundancy is key to this concept. The data center where the site is deployed must have a plan for interruptions of power as well as power outages. This issue is usually addressed by a mixture of generator power and UPS systems, a combination that allows access to the site regardless of any power outage at the data center.

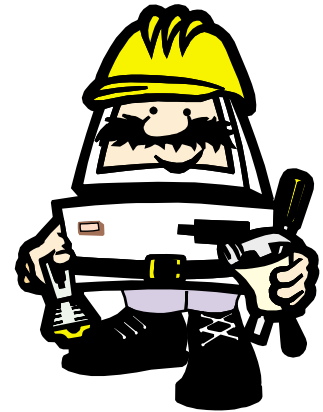
A power supply isn't the only essential resource for the Web server – the network it's connected to should also have built-in layers of redundancy. Any server's connection

to the Internet should be through multiple providers and physically redundant. Provider redundancy ensures that multiple network paths are available to reach the customer, and physical redundancy is essential to diminish the risk of losing the Internet connection if a cable is cut.

The last component of operating in a 24/7 environment is having a monitoring and support plan. Administrators need to be continually aware of the status of all the servers in the deployment so problems can be dealt with quickly. Several different solutions to monitor the health of servers are available. Administrators also need to have resources available to resolve problems that lie beyond their abilities. This may mean having an escalation plan for support with any software or hardware vendors used in the deployment or an internal escalation plan for problem resolution.

Disaster Recovery

All systems will eventually fail. The important thing is to have a plan in place to cope with the failure whenever it occurs. There are a number of solutions to server hardware failure, as well as various levels of recovery for this kind of failure. The easiest resolution is to rely on a warranty or service contract, but this can become very expensive as the demand for fast response time comes into play. The failure can also be handled through hot or cold spare parts. Hot spares are parts that activate without any intervention. Common examples are RAID arrays or even load-balanced servers. Cold spares are simply replacement parts that are kept on hand.



In addition to downtime, server hardware failure can lead to the loss of important data. But even if the hardware is operating correctly, data loss can occur because of a software or user error. All important data should be backed up and the backups tested on a regular schedule. At least one copy of this backup should be kept at a site other than the deployment site to ensure that even in the event of a serious disaster, all is not lost.

Another way to address disaster situations is to set up caching or mirrors of the deployment. This can provide a window to address issues with the actual deployment servers without taking the site offline. Gaining access to slow or partial information is better than getting no information at all.

Performance

To get the best performance out of a deployment, the data infrastructure has to be designed to handle the load of the Web site. The raw bandwidth available must be able to handle the traffic of all customers who wish to access the site. If the bandwidth is insufficient, most other means of optimization will be ineffective.

The performance of the network depends on more than just raw capacity. The points at which the data

center connects to the Internet are crucial as well. Peering agreements and bandwidth providers can have a serious effect on site performance, depending on what network customers utilize to connect to the server. First, make sure the network meets the demands of the deployment, then look at the actual configuration of the hardware and software to ensure that it's tuned to the needs of the Web site. This can mean utilizing load balancing to handle high traffic sites or evaluating different database options.

Scalability

Performance guidelines involve managing the capacity and performance of the site today. Scalability is about planning for the future. As time passes, the size of most successful site deployments grows. By planning for this growth from the beginning, administrators can make life easier in the future. This plan should include how to expand capacity and improve performance as traffic load increases. As the site grows, it will also outgrow some of the equipment. A decommission plan helps gain back some of the initial investment and provides a guide to prevent overspending on components that may be removed in the near future.

Make sure the plan addresses the growth caused by seasonal spikes in traffic. Different sites have different peak times. For example, most online retailers prepare for the heavy shopping season in December. The plan should make sure that when the busy season rolls around, the deployment is ready to handle the load.

Security

The security of a deployment must be checked and guaranteed at several points. The first level of security is the physical security of the equipment itself, which must be protected from physical compromise. Physical access should also be accounted for so that those with access can be tracked in the event of a physical compromise. The network deployment must also have security controls in place. This means using firewalls to control access as well as making sure that communications between servers are either encrypted or carried on a private network. After

A power supply isn't the only essential resource for the Web server

addressing the external security issues, examine the security of the applications in use and make sure the data is properly stored to protect against vulnerabilities. A compromise of customer data can end even the most promising e-commerce site.

A New Model Helps

For all but the largest corporations, the cost and difficulty of building and maintaining a Web-focused data center puts that option out of the question. The vast majority of e-businesses seek some type of specialized external provider to meet their Web server requirements. A number of hosting options are now available.

At the low end of the Web server spectrum, virtual hosting offers an affordable and easy-to-administer solution for brochure-ware or other very simple, static Web sites. But because users typically share space on a common virtual hosting server, this arrangement is risky and subject to delays when traffic increases. Virtual hosting also lacks the flexibility needed for most business-to-business or e-commerce Web sites. E-business needs may change quickly, and when they do, virtual hosting may not be able to keep up.

Colocation provides almost complete control and flexibility. In this arrangement, a user purchases and configures a Web server, then places it into a data center that provides bandwidth access. Colocation's primary advantage is freedom; because the customer is only leasing space in the data center, he or she is free to put any choice of hardware configu-

ration into that space. However, if a hardware problem occurs, the customer holds the responsibility of correcting it. Access to the facility may be limited, meaning you'd have no recourse at all if your hardware fails at 2:00 a.m. This option provides a lot of technical control, but the end user actually owns and maintains the platform, so it can be very costly and complicated to operate or expand a colocated Web site.

A newer approach, managed hosting, is rapidly gaining recognition as the best of both worlds with regard to cost and flexibility for growing e-businesses, Web designers, ASPs, and others. Managed hosting offers leased access to dedicated Web servers, making it a flexible and scalable alternative to virtual hosting and colocation. In fact, it combines the convenience of virtual hosting with the power of colocation, then adds the potent economic and scalability benefits of the leasing model. The customer can focus on the Web site itself instead of the management of the network or the server hardware.

A Logical Choice

For most organizations, it makes far more sense to turn server management over to skilled and experienced professionals. Those specialists have already built and are running reliable, cost-efficient Web data centers. They have access to the most current Web server technologies and can use their volume buying power to further reduce infrastructure costs. They test and verify the reliability of new systems, and because they focus on this technology, they've seen and can quickly solve virtually all potential server problems.

In addition to virtual hosting and colocation, managed hosting has become a highly workable option for many organizations. It adds a significant benefit: by offloading some of the management issues, the company is able to focus on the site itself. This means that the company can worry less about the hosting and more about the customer – and in the end, that's the key to success.



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Forget Work, Let's Play

Thoughts on training and learning

BY
HAL
HELMES



Let me say it up front: I'm frustrated by the training offered to developers. I'll set a scene; tell me if it sounds familiar....

An instructor stands up in front of a class. Once the students are duly quiet, the first PowerPoint slide appears. It's followed by hundreds more. Occasionally they're turned off, and the students watch and try to follow along as the instructor "guides" them in an "exercise." No time to understand how this particular topic fits in to any other topic already presented. No time for anything but the quickest of questions – the next PowerPoint presentation is ready to begin.

After having taught and mentored thousands of students, I'm convinced that this approach, as common as it is, is deeply flawed. Learning occurs in spite of the training, not because of it. Yet companies continue offering this sort of training.

Why? I suppose one reason is that it's so profitable for the company offering the training. It's not that these companies set out to deliver inferior training; it's just that once the format is established, there's little reason to improve it. After all, students keep coming, plunking down their money, sitting like robots in a classroom while they're lectured at. They dutifully open the files the instructor tells them to, cut and paste, and click Browse. Then on to the next lesson.

How much is really learned? Do the students return to their workplaces with radically upgraded skills? Too often they don't know how to implement what they've just earned a certificate in. They do remember a tip or two – and this passes as training.

I believe we can do better. Recently I began offering an intensive five-day class on developing applications with ColdFusion and Fusebox. I tell developers to come ready for an intense experience, and come ready they do, with a zeal for learning that's both amazing and inspiring. Such a gather-

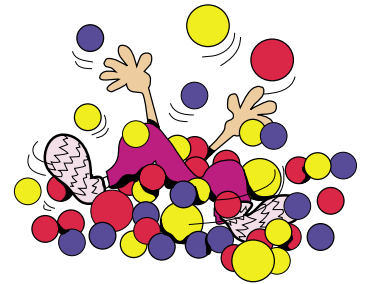
ing of like-minded developers is a wonderful experience and constitutes what I call radical training. "One year in one week" is how one class described it to me. "We learned what we would normally learn in a year during that week." Note that they say they learned and not that I taught. This isn't false humility – the best learning environment combines an expert teacher, motivated students, course work that encourages exploration, and a format that minimizes lecturing and maximizes discovery. In such an environment real learning can take place on an unprecedented scale.

The power of such a learning environment was driven home to me recently. About a year ago, my then 10-year-old son discovered Pokemon. For those of you not familiar with the particulars of this craze, it involves over 150 distinct "pocket monsters," each belonging to one of 15 types and each having a unique blend of powers, protections, experience, and moves.

To make things more complicated, they can evolve from one kind into another. It all seems like some bizarre morphing of "Mutants from Outer Space" with the Biblical book of Deuteronomy: and thus Pichu beget Pikachu who, in turn, did beget Raichu.

But the amount of sheer information kids absorb is amazing! There's a lot of stuff to learn to be a "Pokemon master." Compared to the intricacies of a battle between Articuno and Dratini, mastering client and session variables in ColdFusion is, well...child's play.

I know what you're thinking: there must be Pokemon classes held at Pokemon training centers throughout the nation. Parents ship their kids off there for two-and-a-half days of training where the kids watch Power-



Point slides featuring Togepi, Zapdos, and Porygon. Official Pokemon trainers discuss the taxonomy of Pokemon characters. Perhaps there's even a Pokemon certification?

Hard as it is to believe, none of these things exist. Kids learn by doing. The game is fashioned in such a way to allow and even encourage exploration. The game is really a process of learning that allows would-be Pokemon masters to learn at their own pace by offering them knowledge when they need and want it. There may well be a huge block of knowledge they'll need to eventually master the game, but it's set out in such a way as to let them nibble at the edges, learning as they're ready.

And of course, kids haven't yet learned the fine art of shame – at least not in regard to knowledge. They're in a state where no one – including themselves – expects them to know everything. They're free to make mistakes and ask other kids for answers. Often, too often, the phone rings at dinnertime and instead of the usual telemarketers asking if I've considered how a kitchen remodel would enhance my home's worth, it's another kid who wants to talk about Pokemon with my son. "So what do you do once you get the seventh badge?" Why isn't he this interested in math?

And yet, if we wanted to teach our children about Pokemon, we couldn't have fashioned a better environment. Without setting out to do so, games like Pokemon are the best learning environments we've found, and there's clearly something to be learned from this and applied to subjects we wish to encourage.

So who's responsible for the lamentable state of training today? Is it the training companies themselves? Well, I know several professional trainers personally, and they're often as frustrated as I am. Sometimes more. They see students struggle to retain the large amount of information that training classes churn out, only to see them eventually give up. "I call it the MEGO syndrome," one trainer said. "My Eyes Glaze Over – and then you've lost them."

Part of the problem, fellow learners, is you and me. Radical learning involves making mistakes, lots of them, and the willingness to endure the temporary discomfort of not knowing what we're doing. Somehow, it's much easier for 10-year-olds than for us. We often prefer the comfort of sitting back and being talked at. It requires little on our part, we do pick up some good stuff, and hey, it beats work! Is it any wonder that training companies offer us what we, to some degree, ask for?

Why rock the boat? Why challenge the status quo? I've spoken previously about how critical I believe our work is. These aren't just empty words. The fact that the two richest men in the world both make software for a living tells us just how important our development work is. In the new economy software, not steel, is king.

But it's also important for us personally. It's my observation that when people operate at a lower level than they can, a certain malaise ensues. If we're not constantly learning, we're stagnating – and that's not a healthy state.

What can we do about this? We can approach this from both micro and macro levels. On the macro level, we can let trainers know that we expect more than to be talked at and spoon-fed material. We can seek out people, books, and events that challenge us. On the micro level, and arguably much more important in effecting real change, we can alter the way we look at learning, moving from the notion that there's a single right way or method and patterning ourselves after those most effective learners – children at play.

This means we'll approach learning differently. Our brains don't operate well as hard drives, storing countless bits of information for later

In the new economy software, not steel, is king

retrieval. Our memories are notoriously fallible. And it only gets worse once we get past the age of 18 or so. As one wag put it, "As we age, memory is the second thing to go.... I forget what the first is." Our brains operate astonishingly well, though, at creating, recognizing, and drawing inferences from patterns. Often our brains work while we're unaware. Here's a quote from Henri Poincare, often called the father of the chaos theory:

I entered an omnibus to go to some place or other. At that moment when I put my foot on the step the idea came to me, without anything in my former thoughts seeming to have paved the way for it, that the transformations I had used to define the Fuchsian functions were identical to non-Euclidean geometry.

We're all familiar with this concept of sudden illumination, of patterns coming together. It's one of the great joys of learning, when what was previously an unformed, shapeless mass of facts suddenly arranges itself into coherence, often seemingly without our active effort. Eureka! – the Greek verb roughly meaning "I found it" – is the natural response.

But we don't and can't get this if the brain doesn't have the raw material to shape into patterns. What you don't get a glimpse of in Poincare's retelling of the event at the bus is the amount of time spent in that nether-state of not knowing. I think there are important parallels for us here, too. I wrote a tutorial some time ago about arrays and the problems encountered if you want to loop over an array, removing some rows. I wrote:

Deleting elements from an array upsets the numbering, so while the array initially had five elements and your

CFLOOP had five, your first deletion reduces this number to four, guaranteeing that your loop will try to reference elements that are no longer there.

My clever solution was to create a new array and, rather than deleting rows, insert the rows you wanted to save into that new array. Based on the log files for www.teamallaire.com/tutorials, I can tell you that a lot of people have read this particular tip. One person, though, recently wrote me to say:

In the tutorial, the easiest solution is left out. If you loop over the array/list backwards you can delete anything you want without messing up the index of the loop.

What an elegant solution – one far better than mine. Maybe my correspondent went to a class called "Backward Looping Over Arrays and Lists." It's possible, but I think it's more likely that he read the tutorial and had a hunch there was a better solution. Firing up Studio, he played with it until, as it did to Poincare, the answer presented itself.

We can do this! It doesn't require expensive equipment or permission from pointy-haired bosses or certification. We can just try it out. Most of the time our efforts don't bear great fruit, at least not immediately, but they do form the basis from which our brains can draw patterns and inferences that we're not consciously aware of. ColdFusion encourages such experimentation. We can try things out in Studio, click the browse tab and see what happens! This is very different from many other languages that must be linked and compiled.

I realize one column won't change much. Unless it strikes a responsive chord in readers, it will be quickly forgotten. But my hope is that you'll read this and that you, too, will have grown tired of training that lectures without teaching, weary of a pedagogy whose sterile environment causes the fruit of knowledge to wither. We can do more. We can demand more of our trainers and of ourselves. Will we?... 

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Hal Helms is a Team Allaire member living in Atlanta, Georgia. A frequent writer on ColdFusion and Fusebox, he also offers training and mentoring on these subjects.

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Good Hosting Is Hard to Find

Do your homework

BY
KELLY
BROWN



In just a few years the Web has exploded and now consists of millions of sites. Accompanying this boom are thousands of companies that host these sites. But the technologies behind the sites are still immature and stories like that in Timeline 1 (see below) are not uncommon.

The scenario in Timeline 1 is true; the names have been removed to protect the innocent (me) from a lawsuit. I have many other horror stories and not just from this particular hosting company. Every host I've worked with has had problems to various degrees. Having your site go down is bad for any company, but for a Web-based company it can be a death sentence. People quickly lose confidence in a site with technical problems, and a million other companies are just a click away.

Types of Hosting

In an ideal situation you could host your Web site yourself. Unfortunately the cost can be prohibitive. You need to have a high-speed Internet connection, powerful server, and the expertise to maintain the equipment. Most small businesses don't have the resources to maintain their own server, which is where hosting comes in. Several types of hosting are available, all of which have their advantages and disadvantages.

Nonvirtual Hosting

This is the cheapest form of hosting available and often comes with an ISP account or is available free from several places on the Web. In this type of hosting you have a subdirectory under someone else's domain name (i.e., <http://somedomain/yourname>).

There are several limitations to this type of hosting, such as the types of scripting available. I don't know of any nonvirtual hosts that allow you to use ColdFusion. While this type of hosting may be okay for your home page, it's usually not suitable for business purposes. A business without its own domain name won't be very credible.

Virtual Hosting

This is the most common type of hosting on the Web and the method I'll focus on. In a virtual hosting environment there are several Web sites on the same server. Each has its own domain name and usually comes with e-mail and the ability to create dynamic Web pages. Virtual hosting is cheap, but you can encounter a variety of problems, which I'll discuss in detail in the next section.

Dedicated Server

With a dedicated server you have the resources of an entire machine. You're essentially renting the server from the hosting company, which provides some level of technical support as well as the tools to administer the machine remotely. At the minimum level the hosting company replaces any hardware that goes bad, but can provide higher levels of support for a price. Dedicated servers are much more expensive than virtual hosting

Timeline 1: Hosting from Hell

8:00 a.m. CEO of the Internet start-up I'm working for calls and says the site is down.

8:05 Log onto Internet. Can't connect to site. Try a ping, which fails.

8:10 Call technical support at hosting company.

8:40 Technical support interrupts Beethoven's Fifth and asks for my domain and IP.

8:50 Technical support person can't connect or ping the site, so he asks me to hold for a minute (while he contacts someone who has a clue).

9:05 Support person says they've taken the server down to fix a problem and that it will be back up ASAP.

9:30 Ping fails.

10:00 Ping fails.

10:30 Successful ping.

10:35 HTML pages are now working, but I get a 403 error when I try a ColdFusion page.

10:40 Call technical support.

11:00 Technical support person doesn't know why ColdFusion isn't working. Puts me on hold.

11:20 Support person reports that one of the sites on the machine is using a script that's crashing the server, so they've disabled scripting while they try to isolate the problem.

11:30 Put up new HTML home page saying we're experiencing technical difficulties.

12:30 p.m. Site still down.

1:30 Site still down.

2:30 Call technical support.

2:35 (That was fast!) Technical support says they're activating one site at a time to try to isolate the bad script.

5:00 Site down.

8:00 Site down; wrote a nasty e-mail to technical support.

10:00 Site down.

12:00 am Site down; gave up for the night.

Next Day:

8:00 a.m. Site down.

12:00 p.m. Site back up.

12:05 Call technical support and find out someone had an ASP script making a bad call to a COM object.

and usually require you to provide some level of administration for the machine, but you avoid many of the problems of virtual servers. You must also purchase licenses for the software you use on the server. If you want to use ColdFusion, you'll have to purchase a copy of the ColdFusion server.

Colocated Server

A colocated server is similar to a dedicated server, except you're responsible for the machine. With a colocated server you essentially purchase your own machine and connect it to the hosting company's high-speed network. If it breaks, you have to fix it, though the hosting company will provide technical support for a price. Because the hosting company doesn't provide the hardware and offers less maintenance, this option is generally cheaper than a dedicated server.

Why All the Problems with Virtual Hosting?

Why is it so difficult to host a Web site? You can run Windows 95 with a personal Web server and ColdFusion on your desktop without any difficulties. The problem with Web hosting is that it's a volume business. Hosting companies put 500 to 1,000 Web sites on a single server, and it's not uncommon to see over 1,000 on UNIX machines. A thousand Web sites sounds like a lot, but most high-power servers can easily handle this number of sites and HTML pages. Server-side scripting is typically the culprit behind system instabilities.

A single server can provide ColdFusion, Active Server Pages, Java Servlets, Perl, and any number of other Web development languages. In addition, it may provide resources such as databases, mail, and COM components. A glitch in any of these technologies can affect the stability of the entire server.

You also have to contend with programs written by many programmers with varying levels of skill. You may be an excellent programmer, but your well-written, streamlined code is competing against many poorly written, inefficient programs.

Another problem with ColdFusion hosting is that it typically runs under NT, although ColdFusion is

Host Index www.hostindex.com/	Has a showcase feature for hosting companies that provide ColdFusion. Although I like HostIndex's user feedback rating system, it's a general site and not rated by ColdFusion users.
CFHUB http://cfhub.com/	Has a top five ColdFusion hosts list compiled by its staff.
CFHostingSurvey www.cfhostingsurvey.com/	About Web created this site as a resource for the ColdFusion community. It provides hosting information and user ratings.
Ben Forta's Site www.forta.com/	Ben Forta recently opened the hosting information portion of his site, which provides host information and user ratings.

TABLE 1 ColdFusion hosting resources

available for UNIX. Despite what Microsoft would like you to believe, NT is just not as stable as most UNIX-based environments.

What to Look For in a ColdFusion Host

There are some general things you should look for in a hosting company, the most important being reliability. Many hosting sites used to have "99.9% uptime guaranteed" plastered across their home pages, but you don't see that much anymore, and it's a telling sign for the industry. Also make sure they have responsive, knowledgeable technical support. Eventually you'll have a problem, and you won't want to spend hours on hold or wait days for an answer. Performance is a big concern for any dynamically generated site. No matter how fast the network connection, an overloaded server will generate slow pages.

You should be aware of some hosting issues specific to ColdFusion. The first is the use of tags that can affect files on the server, like `<CFFILE>` and `<CFDIRECTORY>`. These tags may be disabled for security purposes. If you need to upload or manipulate files on your site, make sure these tags are available.

You should also check to see if the ColdFusion Security Sand Box is enabled. This feature limits access to files and data sources to a particular site. You don't want other people with sites on the server to be able to access your files or database. You may also need access to certain custom tags on your site. Some hosts provide commonly used custom tags or will allow you to upload them.

How to Find a ColdFusion Host

Now you know what to look for in a host, but how exactly do you find out how good a hosting company is before you host a site there? Fortunately there are many resources available on the Web to aid you in your search.

Hosting information sites rate hosting companies in some fashion. I prefer the sites that provide user-based ratings in various categories. You shouldn't base your decisions solely on the ratings. Take the time to read the user comments. A site may be rated high in general, but may have specific issues you'll discover only by taking the time to read the comments. The biggest problem with these rating sites is that the majority of people create static HTML sites, so the ratings don't reflect how well the service will perform for a ColdFusion site.

Asking other ColdFusion developers is another good way to learn about hosting companies. In particular, the support forums provided by Allaire (www.allaire.com) are a good place to ask. The forums get a lot of traffic and the people are helpful.

Table 1 contains some resources specific to ColdFusion hosting.

Your Web site is a reflection of your company, and bad hosting makes your company look bad. Do your research before choosing a hosting company and make sure it's right for you.



ABOUT THE AUTHOR

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Finding a Web Host: Tips from One Who's Been There

Shop till you drop

BY
NEIL
ROSS



Companies often find themselves forced to look to others to provide professional Web hosting services because of the costs associated with maintaining an on-site Web server. These services are known as Internet presence providers or Web hosts.

To say the least, if you're looking for a Web host or have done so in the past, you might compare it to a quest. It's a quest not unlike those of the knights of Arthurian legend, one that can take you in circles, test your sanity, and pit you against some of the most foul villains known to Web developers and business owners. Okay, maybe I'm exaggerating a little, but it can be a royal pain!

I've shopped for a Web host and worked for a Web host and have heard all the horror stories – from accounts not being set up, to overcharged credit cards, and simply unresponsive technical support and customer service staffs. Without going into detail regarding any of the nightmares I've lived through, let's talk about what you can do to avoid them.

I've learned over the past several years that you need to approach the task of finding a Web host methodically. If you keep a few important things in mind, make a plan up front, and follow a few steps, you can eliminate some – if not many – of the headaches those horror stories are based on.

At Your Service

When it comes down to it, you've got to remember that you're looking for a service, not a product. So let's take customer service into consideration first and hope your potential hosting choices feel the same way! Personally, I'd rather sign up with one of the *big* Web hosts. Companies such as Interland, Verio, or UUNet have proven track records, updated hardware and software, and great connec-

tivity to the Internet. These companies are also easier to check up on from a customer service standpoint.

Several sites on the Internet compare Web hosts, such as HostCompare.com, HostIndex.com, and WebHosters.com. These sites rank Web hosts based on customer feedback and industry data. Magazines and books dedicated to Web hosting are also worth a look.

A Web host's service is key to the success of your site, the retention of your sanity, and what's left of your hair. Let's face it, if you can't get anyone on the phone or if they can't find resolution to your issues promptly, all the time you spent deciding on a hosting company was for naught. Unhappy customers often report their problems to better business bureaus and state attorneys general, and a little digging might pull up dirt on even the biggest and best Web hosts.

Technical Needs

You've checked out the top-rated companies; now you have to look at your needs. First, assess your technical needs. Consider what technical services a Web host needs to offer to meet your business goals. You may want to use resources like ColdFusion, Shockwave, or SSL. Your needs may vary but one thing is for sure, they must all be met for your Web site to be successful. Make a list of your requirements and update it as you think of something else that you might need. When you've completed your list, match your requirements to

a hosting platform and a hosting plan.

When determining which hosting platform to choose, look close to home. Be humble, and evaluate your technical skills or those of your Web team. Think about how much hands-on participation you'll have in the administration process. Can you manipulate a UNIX server at the command line? If not, you'll be depending on technical support personnel to take care of everything for you. If you do want to do a little bit of setup yourself, consider some other hosting platform. Good Web hosts offer both UNIX and NT packages and should have one that will be appropriate for your skill level.

Keep in mind that many Web hosts have some form of online administration tool. These are accessible through your Web browser and allow you to do things like set up e-mail addresses, create mailing lists, and request data source creation.

Web hosting plans come in all shapes and sizes. You'll find subdomain, shared, and dedicated, colocated, e-commerce, and application hosting. Each of these types has its own niche and caters to different groups of clients. You need to figure out which company and plan is best for you. In this article we'll look at the most common hosting packages: shared hosting, dedicated hosting, and colocated hosting.

To determine the type of hosting account that best suits your needs, take your list of requirements and choice of server platform and match them with a hosting package offered

by the companies you have in mind up to this point. Forget about pricing for now; just find the hosting package that's most suitable. If you're starting off with a small Web site without any unique requirements or demands for enormous amounts of bandwidth, you might want to look first at shared hosting packages.

Shared Hosting

Shared hosting simply means that a domain resides on a server box that also houses many other domains. This is your best bet if you're not really a technical person but want to be able to make changes to your Web site whenever you like. Shared hosting plans come in a variety of shapes and sizes and may include various amounts of hard disk storage space and extra features, such as CGI access, scripts, and POP accounts.

Shared domain accounts are commonly set up on the day you order them and allow you to publish your Web site immediately. Shared hosting is the least expensive solution but may not always offer the reliability and easy customization some Web sites demand. They don't allow you to do any administration of the server that holds your site and should never allow direct access to the directory structure of the server. If you choose to purchase a shared hosting package, you'll be totally dependent on the technical support and customer service staff of your Web host for all your server administration needs. This often includes the installation of any extensions your Web site might need and the setup of data sources for your ColdFusion or database-interactive applications.

Shared hosting plans aren't suitable for Web sites with enormous amounts of traffic, custom administration requirements, and custom software installation. If you foresee the need for more control of your server box or expect to experience heavy traffic loads, you might want to look into a dedicated hosting service.

Dedicated Hosting

If you've outgrown your Web space and require the ability to install custom software or implement custom configurations of existing soft-

ware, you may need your own dedicated Web server. You won't have to worry about other sites on that box causing the server to hang or crash.

Dedicated hosting accounts offer several advantages over shared hosting, including:

- Increased storage capacity
- Improved reliability
- Flexibility to customize software and server settings
- Increased server speed
- Lower page-response times

Faster server response, increased up-time, and faster page loads will ultimately improve the experience of your Web site visitors.

The costs for dedicated Web servers can be much higher than those of shared domain hosting. Though most commercial Web sites will do fine on a shared hosting account, your requirements will determine whether you need to step up to a dedicated server.

Colocated Hosting

Colocation affords you total control over your server. With colocated hosting your Web hosts put your server on their premises and allow you to make use of their bandwidth and facilities. You have complete control over your server, software, and operating system and ultimately complete responsibility if you mess something up. Colocation allows you to set up your Web server and custom configure it before you send it to the Web host.



Consider colocation only if you or your Web team are experienced with server hardware and software. You should also ensure that you have adequate resources to handle the extra monitoring and maintenance that occur. The costs of colocation are restrictive for many due to the up-front cost of the server itself and all the software that goes on it. You then pay your Web host monthly for the rack space, bandwidth, and server monitoring.

Price Points

Alas, it also comes down to price. Let's face it, for most of us and for our clients, money is an issue. So you've got to make sure to get the most for your money. You may have noticed that some hosting packages meet all your technical requirements, but allow you to serve only a certain amount of data before you're charged for surpassing this invisible barrier. Basically, you're fined for being successful, and this can be a killer for small Web sites that suddenly gain notoriety and popularity through reviews or advertising. The resulting charges from increased Web site activity can be dramatic, so know what you're being charged for and make sure the hosting package you choose allows you some room for growth.

You also need to pay attention to billing matters. Many Web hosts pull you in with offers like "Three Months Free Hosting," but offer those free months only on the back end of a 24-month agreement. In addition, they'll charge your credit card for *all* 24 months up front. Now, say you've decided that they're not living up to the hype and you choose to leave, citing the company's "30-Day Satisfaction Guarantee." It may take you months to get reimbursed for the charges the Web host slapped you with on Day One!

Expect to pay more for dedicated or colocated servers. Shared hosting accounts can range from *free* to somewhere around \$500, with the most common package prices falling somewhere in between. Actually, you should be able to find a well-rounded shared hosting package by spending \$50-\$125.

Personality Matters

You've determined that several of the top-rated companies offer the type of hosting package that's right for you and meets all your technical requirements. You've checked to make sure that their customer service record is unimpeachable. You've chosen hosting packages that are within your budget and everything! Now you've got to pick two or three of these companies to contact.

When you start thinking about how much this is going to cost, you've got to remember your time. It's valuable! Remember what you're paying for? *Service!* You need to get on the phone and speak with the sales and customer service departments. You're looking for a company that doesn't consider it an inconvenience to take the time to talk to you prior to your signing a contract.

Ask them a lot of questions. Find out who to contact to get technical problems resolved, and know up front how to handle complaints or breaches of contract. Let them know

“
Faster server
response, increased
up-time, and faster
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ultimately improve
the experience of
your Web site visitors
”

you demand and won't settle for anything less than prompt service and the best performance. Be sure to ask about the company's billing policy and if you're going to be billed up front for services yet to be delivered.

Look for a Web host that allows you to contact one person directly for all your customer service and technical

support needs. If you have a friendly relationship with this one contact, it can make your life a whole lot easier because you'll have a personal advocate pleading your case on the inside.

Conclusion

Okay, so that's my advice. In short, you've got to remember that you're looking for a service, and you've got to tailor your search to that fact. You can make use of online resources to help you find the Web host that will meet your needs and live up to your expectations. Make sure you take into consideration your participation in the hosting process, your time, and your money. Keep on top of your hosting situation, and make sure your Web host is working for you so that you're not running in circles, losing your sanity, or pulling out your hair.

Remember these tips. Take them to heart, and your quest to find a Web host will be a bit less beastly. 

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Java for CFers Part 3 of 3



BY
BEN
FORTA

The ultimate development platform

In my last two columns we looked at JavaServer Pages (JSP) and compared ColdFusion development to JSP development. As explained, JSP is designed to dramatically lower the cost of entry into the Java development world, and JRun, in particular (with its tag libraries), does even more to deliver on this promise.

We ColdFusion developers know that a CF-Java convergence is on the way. We also know that when this happens, knowledge of Java won't be required and we'll be able to develop CF code as we do now. However, as explained earlier in this series, there are compelling reasons to consider Java-based development and the Java platform – even for ColdFusion developers and even right now.

Why Leverage Java?

It's no secret – Java is hot, and the sheer mass of available Java resources is nothing short of mind-boggling. From books and tutorials, to commercial and publicly available libraries, to interfaces for all sorts of applications and products – the ability to interact with Java opens up all sorts of new avenues for ColdFusion developers.

In addition and as I've written in previous columns, ColdFusion developers need to think about code reuse, abstraction, encapsulation, and componentization. As the next generation of ColdFusion will be built upon a Java platform, using Java components within your code ensures that you're walking the same path Allaire is.

All said and done, ColdFusion developers need to take a good look at Java – right away.

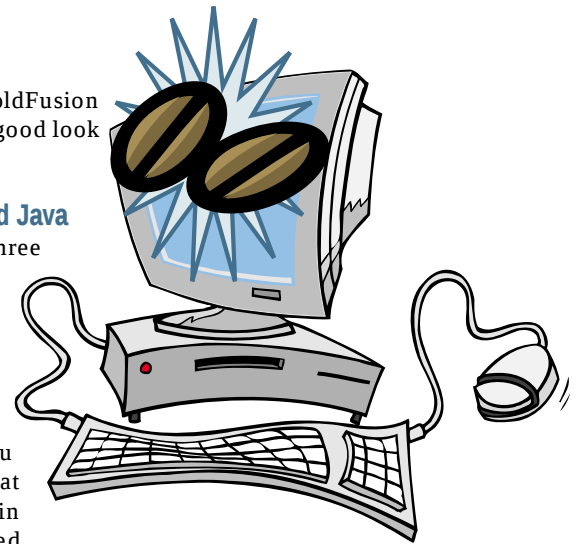
Integrating ColdFusion and Java

ColdFusion provides three ways to interact with Java:

1. The CFX interface (originally designed to allow C/C++ developers to extend CF) supports Java. Using this interface (CFAPI) you can write Java code that can be registered within ColdFusion, then used like any other tag.
2. <CFSERVLET> can be used to execute a servlet in the Java server. This tag is used in conjunction with <CFSERVLETPARAM>, which passes data to the servlet. Data returned by <CFSERVLET> may be written out to the client or saved to a variable for further manipulation.
3. <CFOBJECT> (as of ColdFusion 4.5) supports Java objects and Enterprise JavaBeans (EJB). The function equivalent of <CFOBJECT>, CreateObject(), also supports Java.

Of these three options <CFSERVLET> is, for all intents and purposes, the least useful. You'll seldom want to display servlet results as is (if you did, you'd probably have used the servlet directly); if you need to manipulate the output, you can use <CFHTTP> to call the page.

For leveraging Java within your ColdFusion code <CFOBJECT> is probably the most useful in that it allows you to interact with generic



Java (unlike the CFX interface that requires CF-specific Java coding). However, the CFX interface does have an advantage – it's far more CF aware (for example, it can read and write queries).

Java via <CFOBJECT>

<CFOBJECT> was introduced in ColdFusion 3 as a means to connect to COM. The tag was extended in ColdFusion 4 to support CORBA, and was extended again in ColdFusion 4.5 to support Java.

The following code snippet (based on example code that's included with ColdFusion) invokes Java code (see Listing 1) that creates a JPEG image containing user-supplied text:

```
<CFOBJECT TYPE="JAVA" ACTION="Create"
NAME="image" CLASS="HelloWorldGraphic">
<CFSET
imglen=image.createImage("Hello
Ben")>
```

<CFOBJECT> requires that the Java class is specified along with a

<CFSCRIPT> can also be used to invoke Java code, and the syntax this way is even cleaner:

As you can see, calling Java code isn't difficult at all. As long as you know the names of the required methods and attributes it's just a matter of calling <CFOBJECT> and <CFSET> (or their <CFSCRIPT> counterparts) as needed.

The examples I used here are rather simplistic – you’ll find invoking Java code in real world applications is typically more involved. Ideally, you’ll want to write the inter-

“”

We ColdFusion
developers
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convergence
is on the way

```
<CFPARAM NAME="ATTRIBUTES.message"  
DEFAULT="">  
<CFSCRIPT>
```

Now invoking Java code is as complex as this:

Summary

Java is an important part of ColdFusion's future, and you'll be hearing lots more about it (and how it affects us CFers) in the next few months. For now, I strongly recommend you look at JRun (you can download the Developer's Edition from the Allaire Web site, www.allaire.com), and when appropriate, consider using Java as a way to extend ColdFusion – together they form the ultimate development platform. 

Ben Forta is Allaire Corporation's product evangelist for the ColdFusion product line. He is the author of the best-selling ColdFusion 4.0 Web Application Construction Kit and its sequel, Advanced ColdFusion 4.0 Development, as well as Allaire Spectra E-Business Construction Kit and Sams Teach Yourself SQL in 10 Minutes. He recently released WAP Development with WML and WMLScript.

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```
import com.allaire.cfx.* ;
import java.util.Hashtable ;
import java.io.* ;
import java.awt.Font ;
import java.awt.Graphics ;
import java.awt.Color ;
import java.awt.image.BufferedImage ;
import com.sun.image.codec.jpeg.JPEGCodec ;
import com.sun.image.codec.jpeg.JPEGImageEncoder ;
import com.sun.image.codec.jpeg.ImageFormatException ;

public class HelloWorldGraphic implements CustomTag
{
    private byte[] data;

    /**
     * simple Java entry point for use with CreateObject() or
     * the cfoobject tag
     */
    public int createImage(String message) throws Exception
    {
        // Create an image to draw graphics on
        BufferedImage image =
            new BufferedImage(400, 60,
BufferedImage.TYPE_INT_RGB );
        Graphics g = image.getGraphics() ;

        // Create a white background
        g.setColor(Color.white) ;
        g.fillRect(0, 0, image.getWidth(), image.getHeight() )
;

        // Draw the Hello World string in blue
        g.setFont( new Font( "Serif", Font.ITALIC, 48 ) ) ;
        g.setColor(Color.blue) ;
        g.drawString(message, 10, 50);
    }
}
```

```

ByteArrayOutputStream out = null;

try
{
    out = new ByteArrayOutputStream();
    JPEGImageEncoder encoder = JPEGCodec.createJPEGen-
coder(out) ;
    encoder.encode( image ) ;
}
catch (IOException ex)
{
    // won't happen with byte array output stream
}
catch( ImageFormatException e )
{
    throw new Exception(
        "Error in HelloWorldGraphic: Unexpected image
format " +
        "exception, " + e.getMessage() ) ;
}
finally
{
    data = out.toByteArray();
    out.close();
}
System.out.println("len is " + data.length);
return data.length;
}

/**
 * after the image is created, you can retrieve the raw
JPG data
 */
public byte[] getImage()
{
    return data;
}
}

```

C O D
LISTIN


The code listing f
 this article can also be located
www.GoldFusionJournal.com

CODE
LISTING

The code listing for
this article can also be located at
www.ColdFusionJournal.com

A Cold Cup o'Joe Part 1 of 8

Configuring for Java

BY
GUY
RISH



There are times during the development of a ColdFusion application when CFML is not the best tool for the job. While this might seem to be a contradiction, it's true nonetheless. Allaire recognized this and while CFML has gotten to be a pretty pumped up scripting language, sometimes it's necessary to get a little help.

That help can come in a big way from Java in the form of regular classes, applets, servlets, EJB, and CFX tags. Building these components in Java gives you access to a powerful array of language extensions that are simply not available or are impractical to implement in CFML.

In this series of articles we'll look at how Java integrates with CFML and the ColdFusion Server (specifically 4.5.1 SP2).

To utilize the information contained in this series, you'll need to have a few software packages installed:

- ColdFusion Server 4.5.1 Service Pack 2 (Professional or Enterprise editions)
- Java 2 SDK
 - Sun's Production release 1.2.2, or
 - Blackdown 1.2.2 RC 4 (or better) for the Linux platform
- A Java servlet engine
 - JRun 3.0 (any edition), or
 - Apache 1.3.x Tomcat
- An Enterprise JavaBean server
 - JRun 3.0 (Enterprise or Developer Editions), or
 - BEA WebLogic



Verifying Your ColdFusion Server Version

From within the ColdFusion Administrator navigate to the Version Info screen. The hyperlink for this screen is the last under the Server menu. The second entry under the Server Information section is Version and reflects the version of the server. It's important to be using at least version 4.5.1 SP2. While many of the samples in this series will work with 4.5, there are some quirks that can cause failure.

Obtaining a JDK

The documentation *Administering ColdFusion Server*, Chapter 3, "Configuring ColdFusion Server," specifies that the Java 2 virtual machine must be installed. A Java 2 platform can be obtained from either Sun's Java Web site (www.javasoft.com/j2ee/j2sdkee) or from Linux, the Blackdown site, where a listing of mirrored locations is given (www.blackdown.org/java-linux/mirrors.html).

Obtaining a Servlet Engine

Suitable Java servlet engines for this series are Allaire's JRun 3.0 and the Tomcat extension to the Apache Web server (<http://jakarta.apache.org/tomcat/index.html>). The more obvious choice is the JRun product. While the Apache Tomcat extension is a fine product, JRun's integration is tighter, allowing use of the <CFSERVLET> tag, and the Developer and Enterprise editions have EJB capability.

Obtaining an EJB Server

Suitable EJB servers for this series are Allaire's JRun 3.0 and BEA System's WebLogic (www.beasys.com/).

Again, while the alternatives to the Allaire product line are worthy of consideration in their own right, the better integration will come with JRun.

Series Environment

I'll be using both Windows and Linux for all the examples in this series. The Windows machine will be Windows 2000 Professional, Service Pack 1, with ColdFusion Server (Enterprise Edition) 4.5.1 SP2, IIS 5.0, Sun's J2EE JDK (1.2.2), and JRun 3.0 SP1. The Linux machine will be RedHat 6.2, with ColdFusion Server (Enterprise Edition) 4.5.1 SP2, Apache 1.3.12, Blackdown's Java 2 JDK (1.2.2 RC 4), and JRun 3.0 SP1. All deviations from this platform will be clearly noted.

My Windows installation has ColdFusion and JRun installed to their default locations: C:\CFUSION and C:\JRUN, respectively. The JDK is installed at C:\Program Files\Javasoft\JDK\1.2.2.

My Linux installation has ColdFusion and JRun installed to their default locations: /opt/coldfusion and /opt/jrun, respectively. The JDK is installed at /usr/local/jdk1.2.2.

Configuring the Administrator Java Settings Panel

Before we can do any integration with Java we need to configure the ColdFusion Server. So let's get down to business. Allaire provides us with what appears to be a fairly straightforward Settings panel for configuring Java. There are, however, some tricks to getting everything to run just right. We'll discuss some of them and how to avoid obstacles.

There are eight different settings in the Java Settings panel:

1. Load JVM when starting ColdFusion checkbox
2. JVM Path setting
3. Class Path setting
4. JVM Initial Heap Size setting
5. JVM Max Heap Size setting
6. System Options setting
7. Implementation Options setting
8. CFX JAR Path setting

As you can see in Figure 1, Allaire has made three default settings from which we can work. The Initial Heap Size of 1024K, the Max Heap Size of 16384K, and CFX JAR Path, which on my Windows machine is C:\CFUSION\Java\classes.

Load JVM When Starting ColdFusion

This setting indicates whether the ColdFusion Server should load the JVM when it starts. When it's unchecked, the ColdFusion server will load the JVM when the first Java object (class or EJB) or Java CFX is called. Clearly this is an issue of system performance and user perception.

If the JVM path is set incorrectly and the ColdFusion Server is flagged to load the JVM at start-up, the server will fail to start. An error message will get set in the server.log file; for example, on Windows,

"Error attempting to start the service,"

and on Linux (complete with sentence error),



FIGURE 1: The ColdFusion Administrator Java Settings panel

"Unknown exception occurred while trying initialize the services."

This can create a tricky situation since the error doesn't inform us that the JVM failed to load. If you've adjusted a number of different settings, you don't know for certain which one is the culprit. It becomes even dicier once you decide to turn off the setting, since the ColdFusion Administrator can no longer be accessed! This setting can be adjusted through the registry at HKEY_LOCAL_MACHINE\SOFTWARE\Allaire\ColdFusion\Current Version\JVM through a string setting, `JVMLoad`. A value of 1 means to load on start, and a value of 0 means not to load on start (Knowledge Base Article 15018, www.allaire.com/Handlers/index.cfm?ID=15018&Method=Full). This can be done through the registry editor (Regedit.exe) on Windows or using a favored text editor on the `cf.registry` file in the registry subdirectory of the ColdFusion installation on UNIX. This problem is more commonly found on Windows machines, where setting the JVM Path setting is not as straightforward as it is on the UNIX platforms.

JVM Path

This setting can be tricky on Windows machines. For whatever reason, Allaire chose not to be very flexible about their path requirements. The use of forward slashes is required, even on Windows (Knowledge Base Article 13863, www.allaire.com/Handlers/index.cfm?ID=13863&Method=Full). While this isn't a problem on the UNIX platforms, failure to do so on Windows will cause the server to fail to start or hang when a Java call is made; for example, on my Windows machine,

C:\Program Files\Java\soft\JDK\1.2.2\jre\bin\classic\jvm.dll

or on my Linux machine,

/usr/local/jdk1.2.2/jre/lib/i386/classic/libjvm.so

There's an additional setting that must be made on the UNIX platforms. An alteration to the `LD_LIBRARY_PATH` variable in the start script must be made to include

locations to various subdirectories of the JDK installation (Knowledge Base Article 15452, www.allaire.com/Handlers/index.cfm?ID=15452&Method=Full). This will make certain that the needed shared objects get loaded with the server. The ColdFusion Server will have to be restarted for this to take effect.

JAVAPATH=/usr/local/jdk1.2.2

LD_LIBRARY_PATH=\$CFHOME/lib:\$JAVAPATH/jre/lib/i386/classic:\$JAVAPATH/jre/lib:\$JAVAPATH/jre/lib/i386/native_threads:\$JAVAPATH/jre/lib/i386

Class Path

This setting defines the Java CLASSPATH used for locating CFX class files, regular class files, and EJB components. I like to set it to the CFX subdirectory of the ColdFusion Server installation. Whether it's a CFX written in Java, C++, or Delphi is immaterial to me; my logic follows that any CFX belongs in the CFX subdirectory. In addition, the path to any auxiliary classes needed should be included as well. For example, on my Windows machine it's at

C:\CFusion\CFX\C\Test

On my Linux machine,

/opt/coldfusion/cfx:/usr/local/test

A number of bugs are documented as being corrected in Release Notes for ColdFusion Server SP1 (Knowledge Base Article 17751, www.allaire.com/Handlers/index.cfm?ID=17751&Method=Full) and SP2 (Knowledge Base Article 18364, www.allaire.com/Handlers/index.cfm?ID=18364&Method=Full). However, verifying this at the time this article was written is difficult, as two other Knowledge Base Articles (17329 and 17334) referenced in the SP1 Release Notes are inaccessible. It's hard to tell if this is a technical glitch at the site, if the articles have been removed, or if those articles were never meant for public consumption.

Reading into the Release Notes, one article seems to indicate that on UNIX the Class Path setting is lost when the server is restarted. The

other seems to indicate two different problems, one on UNIX and the other on an unspecified platform, presumably both Windows and UNIX. The former refers to changing the path separator from a semicolon to a colon, and the latter to a 500-character limit in the Class Path field in the Administrator. The first two of these three bugs appear to be fixed in SP1. The 500-character limit in the Class Path is a bug for which there's an easy test. Upon closer inspection of the source of the Java Settings panel, the Class Path input field on the Windows platform is indeed set to a maximum length of 500. However, on Linux and Solaris for SP1, the maximum length is set to 250. This is corrected in SP2.

JVM Heap Size

This is a great setting for controlling the memory allocation on your server. The Initial and Maximum Heap Memory Size values allow you to adjust for your specific utilization needs. By default, the server uses 1024KB for the Initial Heap Size and 16384KB for the Maximum Heap Size. In many cases this is enough; however, Allaire recommends on Linux (Knowledge Base Article 15452, www.allaire.com/Handlers/index.cfm?ID=15452&Method=Full) 4096KB for the Initial Heap Size and 65536KB for the Maximum Heap Size. This is a good recommendation on all platforms for the kinds of things we'll be examining later in this series.

System and Implementation Options

These options show as separate entries on the Java Settings panel but I'll address them together, as they reflect the same kinds of information. Through these two settings it's possible to make configurations to the JVM. System Options are a nice keyhole into the JVM environment, allowing for global settings to be made that will affect the way the JVM runs, such as what Just-in-Time compiler to use or an alternate security manager. Entries for these settings are done in key/value pair assignment format (i.e., property=value) and separated by semicolons. For example, Java.security.manager=java.rmi.RMISecurityManager.

“...with the exception of a few twists and turns, there really isn't much to Java enabling your ColdFusion Server installation

Implementation Options are another keyhole into the JVM. Acting like command line switches, they set options for the way the JVM executes. Implementation Options are specific to a JVM implementation (for example, Microsoft's JVM might have special options for interfacing with COM services). Entries look like command line options, leading with a dash and a letter switch. You can usually get a listing of supported switches by executing your Java command with the help switch (java -h). For example, -Djava.compiler=NONE.

A problem on UNIX platforms causes these settings to clear whenever there's more than one option specified. Allaire's workaround to this is to restrict your usage of both settings to just one value each (Knowledge Base Article 15955, www.allaire.com/Handlers/index.cfm?ID=15955&Method=Full). Further complicating this is Allaire's recommendation for Linux (Knowledge Base Article 15452, www.allaire.com/Handlers/index.cfm?ID=15452&Method=Full) for the System Option setting, java.compiler=NONE.

CFX JAR Path

Here the location of the Java archive containing Allaire's Java CFX library is identified. The ColdFusion Administrator provides one by default. For example, on my Windows machine it's:

C:\CFUSION\Java\classes

On my Linux machine,

/opt/coldfusion/java/classes

Restarting the Server

Perhaps it's obvious, but I would be remiss if I left out this tidbit of information. It's necessary to restart the ColdFusion Server whenever you make a change in the settings panel if the JVM has been loaded. This can mean any time you make a change if the JVM is set to load at server start-up. At best, failing to do this can cause some confusion when templates don't act as you intend. In the case of adding to the Class Path, the ColdFusion Server will report back that it's unable to locate the referenced class or cause other classes to raise exceptions and fail. This can make for a very messy looking application.

It's possible to catch these errors programmatically with the structured exception handling in CFML (<CFTRY> and <CFCATCH>). It's a good recommendation to use try/catch blocks liberally when working with any object. It gives you, the developer, a great deal of flexibility to enable your application to degrade gracefully under dire situations.

Wrapping It Up

As you can see, with the exception of a few twists and turns, there really isn't much to Java enabling your ColdFusion Server installation. All that remains is to actually test the configuration. You can do this by creating a regular Java class and calling it with <CFOBJECT>. A class with a simple “hello world” functionality would do. The code for this simple test can be found in Listings 1 and 2. Compile the Java source from Listing 1, place the resulting bytecode file somewhere in your class path, and execute the template from Listing 2. I'll cover using Java classes with <CFOBJECT> in later articles, so I won't explain the listings here. To paraphrase Fermat, the explanation is too large to fit in the sidebar.



ABOUT THE AUTHOR

Guy Rish teaches and mentors ColdFusion and object-oriented analysis and design for Andrews Technology, a consulting firm in San Francisco. He holds instructor certifications from Rational Software and Allaire and teaches ColdFusion for SFSU in the Multimedia Studies Program. Guy is active in both the ColdFusion and OO communities through user groups and was a workshop leader at UML 2000.

<CF_FUTURE_2001>

The Second Allaire Developer Conference

BY
ANDREW
CRIPPS



Picture yourself in a hotel lobby in Washington, DC, clutching a laptop bag and a suitcase, surrounded by about a hundred other people with similar luggage and appearance. You've just checked in, and you're flipping through the conference guide to get your bearings and making last-minute changes to your session choices.

It's a vibrant atmosphere. Upstairs, the exhibition area is filled with people crowding around demonstration stands, and every tee shirt seems to have a high-tech message.

The Second Allaire Developer Conference ran November 5–8 and attracted over 2,700 attendees, more than double last year's attendance. The major ingredients packing the schedule were keynote speeches, in-depth sessions, hands-on training, panel discussions, special interest groups, sponsor presentations, an exhibition area, and birds-of-a-feather sessions. This mix, combined with the enthusiasm of the Allaire developer community, created a very exciting and stimulating atmosphere.

Keynote speeches from Allaire began two of the conference days, and sessions ran all day in parallel. Time between sessions was taken up with coffee and networking. Sessions were organized along these tracks:

- Application Development
- Solutions Development
- Server Management
- Technology Integration
- Best Practices

You wouldn't have wanted to miss the keynote addresses, given by David Orfao (president and CEO, Allaire) and Jeremy Allaire (CTO, Allaire) under the banner <CF_FUTURE_2001>. Allaire Corporation used the opportunity to introduce new products and to create a colorful and enduring impression of the company as one that's poised to seize the Internet market.

Dry ice, techno music, laser lights, and strobe lights all contributed to the youthful and enthusiastic atmosphere. With pressure on Allaire's

stock price in recent months, many attendees seemed to be seeking reassurance. The message from David Orfao was clear: Wall Street can worry alone for now; Allaire is focusing on getting the right technology in place to make 2001 a fantastic year.

Jeremy Allaire reinforced Allaire's three technology pillars – Web application servers, visual tools, and application frameworks – with product demonstrations. Allaire's major goals are mass adoption of their technology through low prices, ease of use, and accessibility – hiding complexity and making it readily accessible.

Web Application Servers Pillar ColdFusion

ColdFusion 5.0 is due out in the first half of 2001. Some features developers can look forward to are:

- **User-defined functions:** It will be possible to create your own functions and include them in a CF page. This is a significant and frequently requested feature.
- **Querying queries:** With the tag CFSQL, it will be possible to create SQL statements that query existing query result sets. This means you'll be able to draw all the data you need into memory from several data sources, then extract just those pieces you need at given points in your application. Major advantages here are (1) performance improvements – an entire product catalog can be drawn into memory at start-up, and the application can access all the data it needs in memory rather than going back to the database each time; and (2) the ability to query two database result sets and combine them with SQL joins.

- **Partial page output:** In CF 5.0 pages will be streamed to the browser. At present, the CF server creates the entire HTML page, then passes it to the browser. In CF 5.0 pages will be streamed as they're generated.

JRun

JRun was demonstrated briefly. JavaServer Pages (JSP) editing features of JRunStudio were demonstrated, as was JRun's built-in WAP (Wireless Application Protocol) gateway. You can use this gateway on your development workstation to build and test WAP/WML applications. Of course full WML support is being included in JRunStudio, too.

Harvest

Harvest is Allaire's Web system administration tool. Allaire wants to duplicate what they've done for developers – make development of Web applications simpler and make the lives of Web system administrators easier. Harvest supports the creation of CAR – ColdFusion Archives – files that can store everything required by a ColdFusion application, from databases to CF pages to application settings. These archive files can be encrypted and protected with authentication keys. The first advantage to creating a CAR file is that deployment of a ColdFusion application is now simple. You take a CAR file, and Harvest knows how it should be unpacked and deployed. This feature is available in ColdFusion 5.0, and the CF administrator can schedule automatic creation of CAR files.

CF 5.0 also includes a new administrator section that monitors the health of applications. Suppose, for example, that a file required by

the application is accidentally deleted. The monitor indicates that the application has a problem, and the administrator can respond. The typical response might well be to restore a previously archived version of the application.

Neo

Neo is part of the pharaoh initiative, the next-generation Web application platform from Allaire. CFML pages will run on a Java engine. The demonstration consisted of a server that had both the Neo engine and the ColdFusion server running. A simple application to calculate primes was executed on the ColdFusion server and took about 12 seconds. The very same CF page was executed on the Neo engine and took about 4 seconds. This is an astonishing improvement in speed. How is it done? Well, JRun already runs Enterprise JavaBeans and servlets. Servlets can be created from JSP. So Allaire's approach is to translate a ColdFusion page into a JSP page and allow JRun to take over and create the servlet from that JSP page. This approach is brilliant because it gives Allaire the ability to take advan-

tage of Java as well as to shield the developer from the complexities of Java – even from the complexities of JSP. Because Neo is based on JRun, an immediate and powerful contingent side effect is that applications are isolated in memory.

Visual Tools Pillar

The visual tools pillar of technology for Allaire was reinforced with demonstrations and an announcement that Allaire has acquired Kawa – the Java IDE (integrated development environment) from Tek-Tools (www.tek-tools.com). A brief demonstration was given of Kawa in which an entity bean was created simply by completing a step-by-step wizard. Kawa generates all the Java code stubs.

Web Application Framework Pillar Spectra

Spectra is Allaire's offering on the Web application framework pillar of technology. It's an object-based development environment that provides services such as content management, syndication, workflow, personalization, and data abstraction. Spectra 1.5 is due out early in 2001,

and some new features were demonstrated. Allaire also announced their next Spectra release, code-named "Dharma."

Summary

Allaire is continuing to focus on developers. Their goals of ease of use, accessibility, and mass adoption continue to be met by solid development tools and Web platforms. This year promises to be an exciting year for the company. They've successfully embraced open industry standards and built them into their products. Java is now central to Allaire's technology offering, but they've succeeded in making it central without alienating the strong ColdFusion development community that's accustomed to developing Web applications with CFML. With the price point for server products well below that of most competitors, Allaire is poised to increase its presence in the Java server, Web application server, and visual tools markets. 

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Fusedocs
can be
powerful
preventive
medicine

Building Fusebox Frameworks Visually

BY JEFF PETERS

As the Fusebox standard grows in popularity, our attention turns to ways we can leverage the standard to work in our favor. As an application architect, you need to use every means you can to help “blueprint” the project and improve the end product.

I was recently introduced to a piece of software that leverages design thinking and consequently created a ColdFusion tool that, hopefully, will apply even more force to the lever.

Fusebox Framework

If you’ve followed the Fusebox concept at all, you’re familiar with the general hierarchy of files used by a typical application: a home app directory with the application’s fusebox file (index.cfm), along with a subdirectory for each circuit application. Each circuit app contains its own fusebox file as well as the fuse files for its own responsibilities.

This standardized framework makes it possible to create applications from simple to complex in a well-planned, easy-to-manage environment. Have you ever revisited an app you wrote three months ago? Was it easy to find your way around, add features, and change behaviors? Unless you’re using a framework

like Fusebox, odds are it was a lot harder than you expected. That’s why frameworks are so useful – the up-front planning makes it far easier to debug, maintain, and upgrade your application. Maybe I’m preaching to the choir here, but I can’t stress this point enough. The more you analyze and plan, the fewer headaches you’ll have down the road.

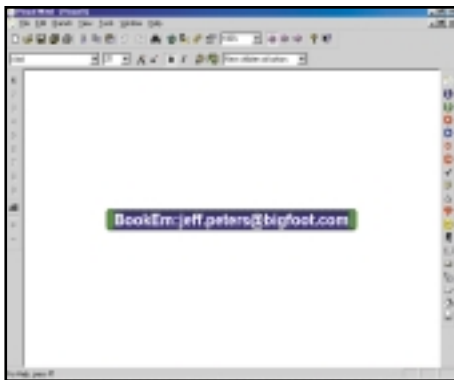
One of the great headache prevention prescriptions I can recommend is to use Fusedocs in your fuse files. Through the use of well-designed Fusedocs, you can literally plan the complete functionality of your application before you write the first line of code. If you’re not familiar with Fusedoc, now’s the time to visit or revisit Hal Helms’s articles in **CFDJ** and at www.fusebox.org.

Fusedocs: Blueprints for Towering Applications

Here’s a statement many folks may not believe at first: the Responsibilities and Attributes sections of an application’s Fusedocs can completely and accurately describe the application’s function such that a developer who has no familiarity with the overall application can write the required code. This means you can focus the talents of your development team where they belong. Great designers should be designing apps, and great coders should be writing great code. Fusedoc gives designers and coders a way to communicate effectively, efficiently, and accurately. If you haven’t guessed yet, I’m a true believer in the powerful benefits of Fusedoc.

Seeking Blueprints

By the time Hal and I got together again in October (for Hal's first-ever Developing Applications with ColdFusion and Fusebox [DACF] class), I was interested in pursuing a graphical solution and brought the topic up again. However, after further discussion, I began to realize that I didn't really have a great purpose in mind for Visio – it just seemed like a cool thing to do. I thought about automatically generating pictures or maps of planned applications to help clients visualize the system. Unfortunately, the multiplication of possible variables soon made these ideas impractical. Not that having such diagrams wouldn't be helpful, but developing the solution would take more time than it was worth.



It was during this state of mind that Hal introduced me to a piece of software he'd been using to help design Fusebox projects. This software caused me to abandon plans for Visio-based solutions in favor of something far more helpful to me as a developer. Before I get to that, I need to stress that at this point, we were working with a clickable prototype of the system and had analyzed it in terms of exit points for each page, fuseactions, and possible fuses.

Armed with this information, we were ready to start constructing a blueprint for the Fusebox framework that would actually make the application work.

Visual Mind: A Tool for Architects

When you open the Visual Mind application, you're presented with a single node. You can give this node a title (see Figure 1). From then on, whenever you type some text and press Enter, a new node is created as a child of the selected node. This is an extremely easy method to use for creating outlines, since you don't need to worry much about mouse clicks and how-tos. Once you see how Visual Mind works, the ideas seem to flow right out of your fingertips onto the map. As you work, you can expand and collapse the hierarchy to make it easier to navigate.

Visual Mind associates a Note with each node in the map. You have the option of turning the Notes pane on and off. For my way of working, the Notes pane is a great place to put the Fusedoc for a fuse, as shown in Figure 3.

With your application mapped out in this way, you can easily work through the details of your design, collapsing and expanding segments of the map, making adjustments as necessary until you're happy with your design. At the same time, you're creating a visual representation of the system that adds a nice piece of documentation to the development history – similar to what I was seeking to do after the fact with Visio.

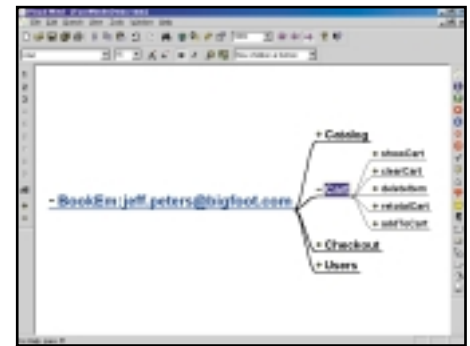


FIGURE 2: Mind map with one circuit app expanded

Thus an idea was born – how about a CF program that would read the input and create my application framework? I outlined the concept that afternoon (Monday), and by using spare tidbits of time between sessions (*never* during class, Hal, *honest!* <g>), I had a working program finished Wednesday afternoon. The rest of the week's spare time was spent refining behaviors, adding features, and generally kicking around ideas with the rest of the class. So now I give you “Fuseminder.”

Fuseminder Builds the Foundation

As I mentioned, Visual Mind has the ability to save your map in a variety of file formats. For Fuseminder I started by using the Tabbed Text format, which writes the mind map in a traditional outline style, using two spaces (even though it's called "Tabbed") as the outline indenting string. So the first level (home app) is not indented, the circuit app level is indented two spaces, the fuseactions are indented four spaces, and so on.

The only problem with the current Visual Mind text output is that it inserts a large chunk of formatting information at the top of the text file (before the outline starts), and a small tail after the end of the outline. Fortunately, there's a way to create custom export formats for Visual Mind. The Fuseminder archive file contains a Visual Mind VMX file for the Out-

Once you've saved the outline, you can use Fuseminder by calling it with this syntax:

```
<cf_fuseminder  
outlineFile="SampleOutline.txt"  
location="c:\myDir">
```

The complete structure “automagically” appears in a blink – talk about avoiding drudge work! *An additional note:* Any nodes you add to the outline at levels below the fuse level will be written into their parent fuse files. For example, if you define your exit fuseactions as nodes beneath each fuse file, they’ll be written to the fuse file along with the Notes section for the fuse. You can then move those lines into the Fusedoc section of the file. How you take advantage of Fuseminder is up to you.

You can even choose the outline indent string; just tell Fuseminder what string you use with the “indenter” attribute. Here’s a sample outline that uses a

```
MyApp
|..Circuit1
|..|..Fuseaction1.1
|..|..|..dspFuse1
|..|..|..dspFuse2
```

Fuseminder is really a fairly simple processor. It reads an input file into an array, then loops over the array, choosing the appropriate action based on the content of each line. Listing 1 shows the complete source code; let's take a look:

Lines 26-77 set up parameters for expected attributes, output beginning lines (if verbose mode is on), and define constants to be used in creating files. Watch for this as you go through the rest of the code – the constants make it far easier to interpret.

Lines 82 and 83 read the input file and dump it into an array. Now we're ready to parse the outline and create the actual framework. This is handled by the loop between lines 86 and 214. Each line is evaluated to determine its appropriate level: Fusedoc, fuse, fuseaction, circuit, or home (CFSWITCH, lines 102-212). Any line that falls deeper in the outline structure than a Fusedoc line is treated as a Fusedoc line, so any nodes you add to the mind map below the fuse level will be written into that fuse file, as Fusedoc lines are.

After looping through the outline array, all that remains is to close the last



Conclusion

Acknowledgments

About the Author

Jeff Peters is an application architect and program manager for Operational Technologies Services in Vienna, Virginia. He is a certified ColdFusion developer and survivor of DACE-1!

www.ColdFusionJournal.com

Listing 1

```

001 <!-- FuseMinder.cfm by jeff.peters@bigfoot.com -->
002
003 <!---
004 || FUSEDOTC ||
005
006 || General ||
007 Name: FuseMinder.cfm (formerly MindReader)
008 Author: jeff.peters@bigfoot.com
009
010 || Responsibilities ||
011 I read a text outline file of the form generated by
Visual Mind and generate the
012 specified circuit apps, including fuseboxes and fuses-
tubs.
013 If "attributes.location" is not defined, I use the cur-
rent directory as home.
014 If "attributes.verbose" is TRUE or not defined, I pro-
duce progress statements
015 while working. If "attributes.indenter" is not defined,
I use two spaces ( "  ")
016 as the outline indenting string.
017
018 || Attributes ||
019 --> attributes.outlineFile: a STRING ( name of outline
file )+
020 --> attributes.location: a STRING ( location of outline
file )
021 --> attributes.verbose: a BOOLEAN ( FALSE )
022 --> attributes.indenter: a STRING ( string to use for
indenting outline levels )
023
024 || END FUSEDOTC ||--->
025 <cfparam name="attributes.OutlineFile"
default="DACF.txt">
026 <cfparam name="attributes.verbose" default="True">
027 <cfparam name="attributes.location" default="#GetDirecto-
ryFromPath(GetCurrentTemplatePath())#">

```

```

028 <cfparam name="attributes.indenter" default="  ">
029
030 <cfif attributes.verbose EQ "Yes">
031 FuseMinder v 1.0 by jeff.peters@bigfoot.com -
rundate:<cfoutput>#DateFormat(Now())#,
#TimeFormat(Now())#</cfoutput>
032 <hr>
033 </cfif>
034
035 <cfif IsDefined("attributes.OutlineFile") EQ "No">
036 <cfthrow type="MindReaderError" message="OutlineFile
not specified.">
037 </cfif>
038
039 <cfset homeRoot = "#attributes.location#">
040
041 <cfset Crlf = "#Chr(10)#">
042 <!--- If homeRoot has a colon in it, we're in Windows,
else Unix --->
043 <cfif Find(":",homeRoot) GT 0>
044 <cfset slash = "\">
045 <cfelse>
046 <cfset slash = "/">
047 </cfif>
048
049 <cfset lastType = "">
050 <cfset lastCircuit = "">
051 <cfset lastFuseaction = "">
052 <cfset fbOpenLines = "<cfswitch expression='fuseac-
tion'>#Crlf#">
053 <cfset modeEverybodyReadWrite = 666>
054
055 <!--- Indenting string constants --->
056 <cfset indenterCircuit = RepeatString(#attributes.inden-
ter#,1)>
057 <cfset indenterFuseaction =
RepeatString(#attributes.indenter#,2)>
058 <cfset indenterFuse = RepeatString(#attributes.indenter#,3)>

```

```

088 <cfif Left(aryOutline[lineNum],8) EQ "#indenterFusedoc#">
089   <cfset lineType = "fusedoc">
090 <cfelseif Left(aryOutline[lineNum],6) EQ "#indenter-
Fuse#">
091   <cfset lineType = "fuse">
092 <cfelseif Left(aryOutline[lineNum],4) EQ "#indenter-
Fuseaction#">
093   <cfset lineType = "fuseaction">
094 <cfelseif Left(aryOutline[lineNum],2) EQ "#indenter-
Circuit#">
095   <cfset lineType = "circuit">
096 <cfelseif Left(aryOutline[lineNum],2) GT "#indenter-
Circuit#">
097   <cfset lineType = "homeapp">
098 <cfelse>
099   <cfset lineType = "unknown">
100 </cfif>
101
102 <CFSWITCH expression="#lineType#">
103   <cfcase value="homeapp">
104     <!-- Store name of home app -->
105     <cfset appLine = Trim(aryOutline[lineNum])>
106     <cfset appName = Trim(ListFirst(appLine,":"))>
107     <cfif FindOnce(":",appLine) GT 0>
108       <cfset ffAuthor = " by #ListLast(appLine,":")#">
109     </cfif>
110     <cfattributes.verbose EQ "Yes">
111       <cfoutput>Building files for
#appName##ffAuthor#. <br></cfoutput>
112     </cfif>
113   </cfcase>
114
115   <cfcase value="circuit">

```

Ask the Training Staff

A source for your CF-related questions

BY
BRUCE
VAN HORN



Well, the new millennium is finally here (sorry for those of you who thought it started last year) and with it comes many unanswered and some unanswerable questions.

Fortunately for you CF developers out there, your CF questions don't have to fall into the category of unanswerable.... Send them in, and we'll get them answered for you. Here are some recent questions to kick off the new year:

Q: *I need to do a three-layer grouping in a report to properly display my information. In MS Access this is no problem; you just use the grouping in the report and work your way through as many levels as you need (to a point). But CF seems to be limited to only two layers (see code that follows). How can I get three or even more layers to display?*

```
<CFOUTPUT query="queryname"
group="query_column">
    #toplayer#
    <CFOUTPUT>
        #nextlayer#
    <CFOUTPUT>
</CFOUTPUT>
```

A: Actually, you can go as deep as you want; you just need to keep specifying the GROUP attribute for each level until the last. Remember to sort your query (using the ORDER BY clause in your SQL) by the columns in which you plan to group the data, as shown here:

```
<CFQUERY NAME="queryname" DATA-
SOURCE="datasourcenam">
    SELECT column1, column2, column3
    FROM tablename
    ORDER BY column1, column2, column2
</CFQUERY>
```

```
<CFOUTPUT query="queryname"
group=" column1">
```

```
#toplayer#
<CFOUTPUT GROUP=" column2">
    #nextlayer#
    <CFOUTPUT GROUP=" column3">
        #nextlayer#
        <CFOUTPUT>
            #nextlayer#
        </CFOUTPUT>
    </CFOUTPUT>
</CFOUTPUT>
```

Q: *I just upgraded my version of MS Internet Explorer from 5.01 to 5.5, and now CF Studio won't show me any of my page changes unless I click the refresh button in Studio's browser. This is very annoying. Is there any way to get Studio to stop this behavior?*

A: Yes! The problem actually has nothing to do with Studio. The problem lies within the way IE 5.5 caches pages. To fix this, open up IE and go to the "Tools" menu, then choose "Internet Options." In the "Temporary Internet files" section, click on the "Settings" button, then tell IE to "Check for newer versions of stored pages" on "Every visit to the page." This will fix the problem of browsing in Studio, because IE will now detect that the page has been modified. Remember that the internal browser for Studio is actually just Internet Explorer.

Q: *In my cfm page, I have a condition where I need to do a CFLOCATION to a page in a different frame. You can't specify the "target" attribute. Is there a way to do this?*

A: No, not using CFLOCATION. The problem here is that ColdFusion is executed entirely on the server with no knowledge of or ability to control things that happen in a browser. CFLOCATION is a server-side redirect. What you need to do is a client-side redirect, which you can accomplish by using a simple JavaScript statement. Where you would have placed the CFLOCATION tag, put in this JavaScript: `<SCRIPT> parent.frameNamehere.location.href='newpage.cfm'</SCRIPT>` (replace "frameNamehere" with the actual name of your frame).

Q: *I seem to remember you showed us in class how to display alternating row colors in a table that's created by <CFOUTPUT>, but I don't remember the code. How can I do this?*

A: Here's one easy way:

```
<CFOUTPUT QUERY="myQuery">
    <TR <CFIF myQuery.CurrentRow MOD
2>BGCOLOR="Yellow"</CFIF>>
        <TD>Some data here</TD>
    </TR>
</CFOUTPUT>
```

Please send questions about ColdFusion (CFML, CF Server, or CF Studio) to AskCFDJ@sys-con.com. 

ABOUT THE AUTHOR

Bruce Van Horn, a regular contributor to CFDJ, is president of Netsite Dynamics, LLC (an Allaire Alliance Partner), and an Allaire certified instructor.

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Interview...with **Todd Peters** of **PaperThin, Inc.**

INTERVIEWED BY ROBERT DIAMOND

CFDJ: Tell us about PaperThin and what you do.

Peters: PaperThin markets and distributes a content management product based completely on ColdFusion – the CommonSpot Content Server. It targets organizations with intranets, Internets, and extranets that have distributed content management needs. CommonSpot enables nontechnical users to publish and manage the content within their site. Ideally, it's for managing the unstructured data within an organization and letting business users create, update, and manage content and its delivery, as well as managing those involved in the publishing work flow.

CFDJ: What about different user levels?

Peters: As I said, CommonSpot targets everyone involved in creating and managing the Web site from nontechnical content contributors to site designers and managers to the technical site developers.

From the developer's end of the spectrum we allow the more technical people to create underlying templates and manage the framework upon which the site's architecture is built. CommonSpot also allows the ColdFusion developer to easily integrate applications in a number of ways. Developers can get down to the iron, if you will, and write their own mini-applications or customize or extend the software. We have a number of hooks and plug-ins for users to tweak the system and customize it.

Moving across the spectrum of roles, a number of tools enable designers to manage their site's look and feel. Designers can restrict users from changing the layout, font, and color properties on the page, allowing changes only in the template. Authors can submit or update content only. On the far end of the spectrum, Common-



SYS-CON Radio interviews Todd Peters (r.) from PaperThin, Inc.

Spot offers intuitive and wizard-driven tools that let nontechnical people, those who own the content within an organization, effectively manage their content and keep it up to date.

CFDJ: Are there ways the technical user can expand on the product, get in his or her own code?

Peters: Absolutely. We have several different mechanisms and integration points for developers. First, all the pages built with CommonSpot derive from a template, and at the base of that template hierarchy developers can write their own ColdFusion modules. These modules get included into CommonSpot as the foundation for each page. You have the flexibility in the base template to use a CF module to include our elements, as appropriate. A second point of integration is our custom ColdFusion script elements that can be managed and dropped on a page as an object or element. Third, we have Custom Rendering Handlers that allow users to change the output or the way specific elements within the product are rendered.

CFDJ: Can you give us an example of some of the companies currently using PaperThin?

Peters: Large corporate customers using CommonSpot as a means of communicating internally include Pfizer, Biogen, University of Massachusetts, and Fire-

men's Fund Insurance. We have large Internet sites, such as Motorcycle World, All-Terrain Vehicles, and the National Cotton Council. And we have several customers using CommonSpot to manage extranet sites; Polaroid, for one. We fit the whole spectrum of those different types of sites.

CFDJ: What's the pricing structure for PaperThin? Is it by license, or is it a onetime product fee?

Peters: We actually offer two models for pricing: a standard edition, which includes the core product plus a set of additional features you can purchase, as well as an enterprise edition with all the bells and whistles. So it's a range. Everything is done on a per-server basis. It starts at \$7,500 for the core license and support for 10 content contributors. Then you can add content personalization, enterprise database support (Oracle or SQLServer), NT authentication, and clustering support.

For larger intranets we offer the enterprise edition. The single-price enterprise license includes an unlimited number of users and all the features and add-ons I previously mentioned. It runs about \$45,000. And we're pleased to announce that a number of our partners will be offering CommonSpot through an ASP model. For smaller sites, where it's preferable to run in a shared environment, on a shared server, pricing is based on a monthly per-contributor fee.

CFDJ: For readers who want more information, give us your Web address.

Peters: We're thin on paper, so we're at www.paperthin.com.

“
CommonSpot
enables
nontechnical
users to
publish and
manage the
content within
their site

robert@sys-con.com

Choosing a ColdFusion Web Host

It's not just a question of who, but perhaps more important, why?

BY
STEPHENIE
HAMILTON



So you need a ColdFusion Web host. Typically, your first question would be: "Who do I choose?" More important, I believe, is the question: "Why am I choosing?" This statement may not seem relevant until you look at the "whys" of choosing a ColdFusion Web host.

There are many things to consider. What type of site will you need hosting for? Will your focus be mainly business or personal? Are you launching an e-commerce or online store? Maybe even a corporate presence site? What are your predictions for visitor traffic? What features will you need to successfully deploy your site? These are just the basic things to consider. So let's start at the top of my "why" list.

ColdFusion Version

Existing sites may depend on a certain version of ColdFusion Application Server. There have been many changes to existing tags as well as added features between ColdFusion 4 and ColdFusion 4.5. If your site has been coded for ColdFusion 4, you may have to make code changes (depending on which tags you use) if you choose a host that offers only ColdFusion 4.5. You can view the complete list of new features at <http://ftp.allaire.com/kbftp/ColdFusion/new.htm>. In addition to the tag and feature changes, there's a difference in the way ColdFusion 4 and ColdFusion 4.5 use server resources. Occasionally a site that ran fine on ColdFusion 4 will consume more resources on ColdFusion 4.5. If you haven't developed your site yet, compare the differences in ColdFusion 4 and ColdFusion 4.5 to see which is right for you. Note that ColdFusion

Application Server 4 is no longer offered by Allaire, and therefore Allaire support may be limited.

Database Needs

There have been many great articles in *ColdFusion Developer's Journal* and other resources about choosing a database, so I won't venture into that territory. Whichever database you've chosen, your host must offer it and be fairly knowledgeable in supporting it. Along with the choice of database comes the choice of version. Bear in mind that with the release of a new version of a product, support for the previous version becomes limited or obsolete. If a problem arises with the database at your Web host and they can't get support for the product, you may face making this decision all over again. That can lead to extended downtime and/or more expense.

ColdFusion Functionality and Custom Tags

Will your site need the use of CFFile, CFDirectory, CFContent, or some of the other "high risk" yet powerful tags in ColdFusion? Many shared hosting providers don't offer the use of these tags as they present a security risk on the server. Suppose a user decides to use the tag CFFile to locate, then delete, important files from the server? Disaster!

Also, consider whether your site will use any custom tags. Although you can use any .cfm custom tag by placing it in the directory that will be calling it, there are many useful and timesaving CFX custom tags available. A CFX tag is a Windows component (.dll), which must be registered in the ColdFusion Administrator before use. If either of these features is important to your site, you'll need a host that will provide them.

Server Platform

Along with the above considerations, the server platform is especially relevant for an existing site. Which platform you choose depends on your personal choice, whether your site is already developed or you'll be developing it from scratch, and the database you plan to use. The ColdFusion Application Server software has been tested with several platforms: Windows (NT or 2000), HP-UX, Linux, and Solaris.

Pricing

Pricing will affect your decision depending on your budget, the features you want/need, and the hosts you investigate. Some hosts offer rock-bottom pricing because their plans and/or resources are rock bottom (i.e., low dollars for low features). Does the host offer a variety of plans? What bandwidth do they

offer? What are the transfer limits and disk space allowed? If you have more than one domain, will you need additional accounts? Do they have a money-back guarantee? How much do they charge for setup fees? What type of payments do they accept (ACH check draft, invoice, credit card)? Do they offer discounts for prepaid lengths, such as three, six, or 12 months? These are all options you must weigh depending on your situation.

DataCenter/Server Room Specifics

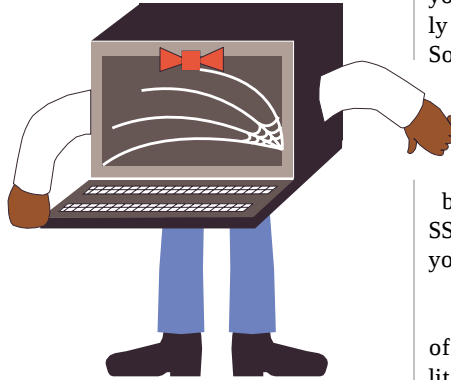
When choosing a host, an important consideration is the equipment they use and the environment in which it's kept. Many larger hosts utilize a data center, where the servers can be kept in a building separate from the offices. Some hosts use an isolated area commonly referred to as a *server room*. If your site is mainly for fun, the following points may not be as important. But if your site is mission-critical, say, an e-commerce site your business depends on, then the answers to the following questions should weigh heavily in your decision.

Questions to ask about their data center/server room can include the following:

- What types or brands of servers are they using?
- Are environmental controls in place, such as temperature control, static reduction, and moisture elimination?
- What fire prevention/suppression plans do they have?
- How do they handle power failures?
- What type of physical access security do they have in place?
- How often are backups performed?
- What is their overall disaster recovery plan?

Support

Another factor in your decision concerns support. What type of support are you mainly concerned with? E-mail? Telephone? Live chat? Will you need support after business hours or on the weekends? What type of support does your prospective host offer? Do they have a toll-free telephone number? How long is their average response



time?

Are customers given honest, easy-to-understand explanations if there's a problem? What level of knowledge does the host require of the support team? As with each of these choices, individual needs will be your deciding factor.

E-Mail

When you think of e-mail choices, you must think beyond your current needs. E-mail can be an ever-growing part of your application. Does your prospective host offer your own domain e-mail addresses? Will you need mailing lists or auto responders? How about a catchall or default account? Does your prospective host offer a Web-based administrative interface? Will you be able to easily create additional e-mail accounts, aliases, or forwards? What brand of e-mail server software are they offering?

Other Application Needs

In addition to ColdFusion, do you have other application needs? Do you plan on using ASP, CGI, Perl, or even PHP? If you'd like to use any Java-based applications, your host must be able to support those as well.

SSL/E-Commerce

If your application does any type of credit card information gathering or processing, you'll need a secure connection. That's where SSL (Secured Socket Layer) comes in. This protocol encrypts the information from the browser to the Web server and back. Without this security in place, you may lose a substantial amount of business due to concerns about credit card fraud. If you need SSL you can purchase

your own certificate, which is usually linked to your domain name. Some providers offer a shared SSL certificate. Basically this is a certificate that was purchased by the host for all users on the server to use if they desire. There can be differences between a shared SSL and a domain-specific SSL in your site's secure URL.

Now that we've gone over many of the "why" questions, let's talk a little about the "who." When you've gathered the answers to your "why" questions, you'll then have a list of prospective "whos." When comparing each host, you should research the following info as well.

Experience

How long has the host been in business? How many users do they have? Do they have any testimonials available? Do you know anyone who's currently hosting with them? If so, what has their experience been? Search through the different Web host rating sites for comments about the prospective host, such as superiorhosts.com, hostindex.com, web-hostdir.com, tophosts.com, or any of the many host review sites. Also take into consideration any partnerships or alliances they have with software producers, such as Allaire, Microsoft, Compaq, Cisco, or Sun. These partnerships/alliances can keep a host well informed about the products they offer and can usually ensure they have adequate product support if they need it.

Now that you have a good list of questions to consider when choosing a host, the next step is to compare the features you need, the questions you have, and the plans each host has to offer. This may seem like a daunting task and you may feel pressured to "just choose one." Remember that if your business or your client's business depends on the site, you must choose carefully. Taking the extra time before making a choice can save you time, money, and frustration down the line. 

ABOUT THE AUTHOR
 Stephanie Hamilton is the senior ColdFusion administrator for CFxHosting. She has been involved in the development of an advanced shared hosting environment that allows access to the ColdFusion Administrator and many other features not found in a typical shared environment.

CFADMIN@CFXHOSTING.COM

Server Stability and Site Performance

Streamlining your code

BY
TIMOTHY
NETTLETON



Thanks to those of you who sent in questions recently. I hope the answers you received from me or other members of the Allaire training team were helpful. For our readers, here are a few of the questions that were submitted.

As part of managing the shared environment, I'm often called to review customer code. This consultation process gives me an opportunity to make recommendations with two goals in mind: server stability and site performance. Even the best written pages can often benefit from additional tweaking. I'm going to break down a functioning and syntactically correct page that needs to be streamlined to accommodate both objectives.

For this example, imagine a single page on a site that uses an MS Access database to display the ID, first name, last name, and e-mail address of everyone in a registration table. The database contains 10,000 records and has nine columns.

Before making any recommendations see the code in Listing 1.

When examining the performance of a page, first activate debugging in ColdFusion Administrator. This will offer a true picture of the page and query processing times. To activate debugging, log into ColdFusion Administrator and click on the "Debugging" link on the left. You'll need to supply your IP address to the form at the bottom of the page and hit Add. Check "Show processing time" and "Show query information," then hit "Apply." In its current form, the above CFQUERY takes 1,200 ms, with the page completing in 2,170 ms.

Restrict Column Access

You can see we're using a "SELECT * FROM TABLE" statement that requests the data from *all* columns in the table. This is unnecessary, as we use only four of the nine requested columns to process

the page. Restrict queries to the columns that are pertinent.

Another step is to order the columns by the decreasing size of the metadata. The requested columns and associated metadata are:

- ID is an AutoNumber.
- First_Name is Text, max length 30.
- First_Name is Text, max length 50.
- E-mail is Text, max length 90.

The SQL statement becomes:

```
SELECT ID, First_Name, Last_Name,
Email FROM Registration ORDER BY ID
ASC
```

Now the query takes 640 ms to process!

Gather Usable Information

Since most humans can't handle 10,000 records at a time, it would be nice to restrict the displayed data into easily assimilated portions. It's also a good idea to provide a search form somewhere else on the site that further restricts the search criteria. For simplicity we'll add the TOP function to return 50 records at a time. It looks like:

```
SELECT TOP 50 ID, First_Name...
```

In tandem with that we need to provide a mechanism for scrolling to the "Next" group of records. We'll accomplish this by adding two pieces of code to the page. On the first line of Users.cfm:

```
<CFPARAM TYPE="NUMERIC"
NAME="URL.Current_ID" default="0">
```

In the SQL query:

```
SELECT top 50
ID, First_Name, Last_Name, Email
FROM Registration
WHERE
ID > #URL.Current_ID#
ORDER BY
ID ASC
```

Above the data display:

```
<CFOUTPUT>
<A
HREF="Users.cfm?Current_ID=#GetUsers.
ID[GetUsers.RecordCount]#">Next</A>
</CFOUTPUT>
```

Not to digress from the discussion on performance and stability, but I'd like to bring up an extremely important security issue. The most important part of this step is the first line that contains the CFPARAM statement.

Because we're passing a variable through the URL to the query, it's possible for a malicious user to make changes to the intended "?Customer_ID=" string and append something like "?Customer_ID=0;DELETE FROM TABLE;"

In our case this would throw an error, but on some MDAC versions it's possible to execute multiple statements in this manner and compromise your database (ASB99-04).

By using the TYPE="NUMERIC" attribute on the CFPARAM, ColdFusion will validate the variable or fail and throw an error.

It's possible to get a similar validation effect using CFQUERYPARAM in the SQL statement like:

```
SELECT top 50
ID, First_Name, Last_Name, Email
FROM Registration
WHERE
```

```
ID > <CFQUERYPARAM VALUE="#URL.Current_ID#" CFSQLTYPE="CF_SQL_INTEGER">
ORDER BY
ID ASC
```

Both methods achieve the same results, but CFQUERYPARAM doesn't allow caching, which we'll talk about momentarily.

With the TOP50 change and security enhancement made, and the above changes made, the query now takes 320 ms!

BLOCKFACTOR and TIMEOUT

We know that the database will almost always return a recordset with 50 rows, so add BLOCKFACTOR="50" to the CFQUERY. Also, to avoid hung threads, add the TIMEOUT attribute to the CFQUERY. Select a TIMEOUT value that will allow optimal processing without making a user wait too long. If you forget this attribute and a query goes long, most likely you'll never know. The user will just close the browser and leave. By adding error handling at the end of this example, you'll be able to get a report on any problems.

```
<CFQUERY NAME="GetUsers" DATA-
SOURCE="CFDJ_Access" BLOCKFACTOR="50"
TIMEOUT="10">
```

At this point it's time to consider two major advances in the performance of the site: migrating data to a superior database and query caching.

First, using Access to develop a site is fine, but in production there are few better choices than MSSQL or Oracle (KB 564). Most hosts will be able to provide an MSSQL database and can probably help you upsize from Access to SQL. Don't wait until the last moment to see how MSSQL can turbocharge the performance and stability of your application! Using and understanding the features of MSSQL is inevitable for you and your site's performance. I've converted the database from MS Access to MSSQL and will use a different data source for the remainder of the example.

The MSSQL query now takes 45 ms! Well, that was easy.

The next point to consider: Is it necessary to pull the most current

Using and understanding the features of MSSQL is inevitable for you and your site's performance

data on every page? When two users request User.cfm simultaneously, each CFQUERY will take 45 ms to execute, though they request and return the same data. In addition, if the data changes only every 10 minutes, page refreshes will hit the database for temporarily static information.

Query Caching

This is probably the most overlooked and powerful aspect of performance tuning. We'll add one more attribute to the CFQUERY named CACHEDWITHIN and insert the CreateTimeSpan() function. The code below will cache the first request for one minute:

```
<CFQUERY NAME="GetUsers" DATA-
SOURCE="CFDJ_SQL"
BLOCKFACTOR="50" TIMEOUT="10"
CACHEDWITHIN="#CreateTimeSpan(0,0,1,0)">
```

The first time the query is attempted, the database responds and ColdFusion stores the recordset in memory. An identical query within 60 seconds will pull the cached recordset rather than connect to the database again. This works equally well in MS Access and MSSQL.

The first hit takes 45 ms and for the following 60 seconds all identi-

cal requests use the cached query. All subsequent requests for the identical SQL statement take 0 ms!

Error Recovery

We want to ensure that if any unexpected conditions occur on this page, the user is redirected, the error is logged, and a nonthreatening message displayed. Two constructs should be used for this task: CFERROR and CFTRY/CFCATCH.

CFERROR

Though redirection can be accomplished using CFERROR, it doesn't allow much more than a diagnostic display. The first line of Users.cfm now reads:

```
<CFERROR TYPE="REQUEST"
TEMPLATE="DB_Problems.cfm"
MAILTO="Timothy.Nettleton@Virtual-
scape.com">
```

I've created a directory named Errors and a file named DB_Problems.cfm (see Listing 2). The CFERROR can also be initiated across your site by adding it to the application.cfm or by configuring it as the "Site-wide Error Handler" from the settings link in ColdFusion Administrator.

Next, I'll use a CFTRY/CFCATCH block around the CFQUERY and CFPARAM statement to verify success. Should any error occur in either tag set, processing will be directed to the CFCATCH block where we write to a log via a CFINCLUDE, then to CFLOCATION to another custom message. Look at the code for DB_Catch.cfm and DB_Message.cfm in Listing 3. You'll notice that I'm also using a CFLOCK around the file write to ensure single-threaded access.

Conclusion

After making all the above modifications to the code and database, we have a file that looks like Listing 4. All that's left is to create MSSQL indexes and convert the query to a stored procedure, but that's a different article. 

ABOUT THE AUTHOR
Timothy Nettleton is the senior engineer for ColdFusion hosting at Virtualscape, a Hostcentric Company. Timothy studied computer science at Georgia Institute of Technology and has been developing ColdFusion applications for three years.

TIMOTHY.NETTLETON@VIRTUALSCAPE.COM

Listing 1: Users.cfm

```

<CFQUERY NAME="GetUsers" DATASOURCE="CFDJ_Access">
  SELECT * FROM Registration ORDER BY ID ASC
</CFQUERY>
<HTML>
<TITLE>Registered Users</TITLE>
<BODY>

ID - First Name Last Name, Email Address<BR>
<CFOUTPUT QUERY="GetUsers">
  #ID# - #First_Name# #First_Name#, #Email#<BR>
</CFOUTPUT>

</BODY>
</HTML>

```

Listing 2: DB_Problems.cfm

```

<HTML>
<TITLE>Problems</TITLE>
<BODY>

There was a problem on the page requested!
<CFOUTPUT>
Please feel free to email the site administrator
<A HREF="MAILTO:#ERROR.MailTo#?SUBJECT=Problems">#ERROR.Mail-
To#</A>
Remote Address:      #ERROR.RemoteAddress#
Date/Time:          #ERROR.DateTtime#

```

```

Diagnostics:        #ERROR.Diagnostics#
HTTP Referer:       #ERROR.HttpReferer#
Query String:        #ERROR.QueryString#
</CFOUTPUT>

</BODY>
</HTML>

```

Listing 3: DB_Catch.cfm

```

<CFSET Variables.Error_Log_Message="
Remote Address:      #CGI.Remote_Addr#
Date/Time:          #Now()#
Message:            #CFCATCH.Message#
Detail:             #CFCATCH.Detail#

">

<CFLOCK NAME="WriteErrorLog" TIMEOUT="10" TYPE="EXCLUSIVE">

<CFIF
FileExists("#GetDirectoryFromPath(GetTemplatePath())#Users_Er
ror.log")>
  <CFSET Variables.Action="Append">
<CFELSE>
  <CFSET Variables.Action="Write">
</CFIF>

<CFFILE

```

```
</CFLOCK>
//////////DB_Message.cfm//////////
<HTML>
<TITLE>Problems</TITLE>
<BODY>
There was a problem on the page requested.
Please check back later!
</BODY>
</HTML>
```

```
<CFERROR TYPE="Request" TEMPLATE="DB_Problems.cfm"
MAILTO="timothy.nettleton@virtualscape.com">
```

WHERE

</HTML>

The code listing for
this article can also be located at
www.ColdFusionJournal.com

JANUARY CFDJ 55

What They're Thinking About Web Hosting

No Extra Charge

You may also want to check out ABI Hosting (www.abihosting.com). I just recently moved one of my Media3 accounts to ABI and have had good luck with them so far. They run about \$20/month and don't charge extra for SQL Server data sources.
Chris Montgomery
monty@astutia.com

The Right Price for Him

Take a look at Interland.com. I get 200MB, CF, SQL Server, and pretty good customer service for \$39.95/month.
Paul Bearden
pbeard@code-conspirators.com

Satisfaction Is Key

These are the ones I'm looking at now (see table):
Tariq Ahmed
tariq@tibcofinance.com

A few months back CFDJ announced CFDJList, a new ColdFusion mailing list community designed for CF discussions, technical questions, and more.... So far, we've been pleased with the response to this often-requested service. What follows is a quick glimpse of some recent discussions about CF hosting companies. As you can see, this topic attracts a wide variety of opinions. To discuss hosting companies and more, join the list. Details can be found at www.coldfusionjournal.com.

Even Basic Rate Supports CF

ICN.net has some fairly reasonable hosting rates. Even its most basic \$15-per-month personal account supports ColdFusion: <http://icn.net/> for the company and its rates are at <http://icn.net/icons/hosting.html>
Larry Lyons
LLyons@ebstor.com

To Share or Not to Share

...you're probably better off finding a high quality ISP and simply paying them to host a server specifically for you. That's because CF is a service and you're going to want more control over it than can reasonably be granted in a shared environment. If for some reason you still want to go to a shared environment, Allaire has a list of partners that host CF on their site.
Chris Stewart
cstewart@QUP.com

Company	Price (\$)	Storage	Traffic	ODBC	Stats	SQL7
CF WEBHOSTING.COM	50 / mo	100MB	Unlim	Unlim	No	\$50 / mo
POWERSURGE.NET	35 / mo	250MB	7GB	5GB	No	\$50 / mo
1STCHOICESITE.COM	35 / mo	250MB	5GB	Unlim	Yes	25MB
HOSTMYSITE.COM	35 / mo	100MB	6GB	Unlim	Yes	20MB
INTERMEDIA.NET	50 / mo	100MB	Unlim	Unlim	Yes	\$50 / mo
CRYSTALTECH.COM	30 / mo	350MB	9GB	Unlim	Yes	\$50 / mo
INFINETHOSTING.COM	25 / mo	Unlim	Unlim	Unlim	Yes	\$20 / mo

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<CFSOUTH> Conference, February 3

<CFSOUTH> is a one-day ColdFusion conference taking place on February 3, at the DoubleTree Orlando Resort and Conference Center in Orlando, Florida. It's organized by Rae Hanson of OCFUG and Michael Smith of TeraTech, who ran the CFUN-2K conference in Washington, DC, last summer.

In addition to keynotes by Steve Drucker, Steve Nelson, and Hal Helms,

there will be a Sponsor

Exhibit Area and 16 forums throughout the day. The \$100 conference fee includes breakfast, lunch, an evening reception, and all conference materials. Register online at

www.cfsouth.org/.

Allaire Receives Award for Personalization Technology

(Newton, MA) – Allaire Corporation was presented with an

<allaire> Appian Laurels

Award during the Personalization Summit in San Francisco. Presented by Appian Corporation, a personalization consulting company, this semiannual prize is awarded to both software vendors and businesses that employ personalization solutions on their Web sites. Allaire received a Platinum Award for Allaire Spectra.

"We are very pleased to receive an Appian Laurel Award and consider this to be a great tribute to the work that Allaire has put into Allaire Spectra," said Todd Boes, senior director of product marketing for Allaire Corporation.

www.allaire.com.

SYS-CON Names Agnes Vanek Corporate VP of Circulation

(Montvale, NJ) – Veteran magazine industry executive Agnes Vanek has joined SYS-CON Media, Inc., as corporate vice president of circulation.

"We are delighted to have Agnes Vanek on board," said Fuat Kircaali, founder and CEO. "Agnes will have a critical role in the launch of our most recent and largest title, **Wireless**

Business & Technology. She will redefine an aggressive circulation strategy for our existing titles including **Java Developer's Journal** and **XML-Journal** and help us successfully launch a number of new world-class titles."

"I am very excited to join the SYS-CON team and look forward to being part of the group that has created the most suc-

cessful technology magazines in recent years," said Vanek.

"**Wireless Business & Technology** aims to be the world's leading publication serving the wireless industry and Internet technology developers."

Vanek started her high-tech career in 1983 at Ziff-Davis as senior circulation manager for *PC Week* and *MacWeek*. Her 18-year professional accomplishments

include managing *CommunicationsWeek* and *CommunicationsWeek International* at CMP. During Vanek's eight-year tenure at IDG, her circulation strategy played a key role in making *Federal Computing Week* the lead publication in the government IT market. In 1996 Vanek successfully launched FCW's sister publication, *civic.com*.

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Next Month...

Here's a sneak peek...

WDDX with JavaScript: Using WDDX to transfer complex data types between the Server and Client (and back)
by Christian Schneider

Best Practices in ColdFusion Development
by Eben Hewitt

Updating Databases Wirelessly: ColdFusion, Fusebox and WML
by Margarita LaPlaza de Androuin and Joseph Schuller

Building an M-Commerce WAP Application: Design to Implementation
by Ralph Fiol

COLD FUSION Developer's Journal

Don't miss the February issue!